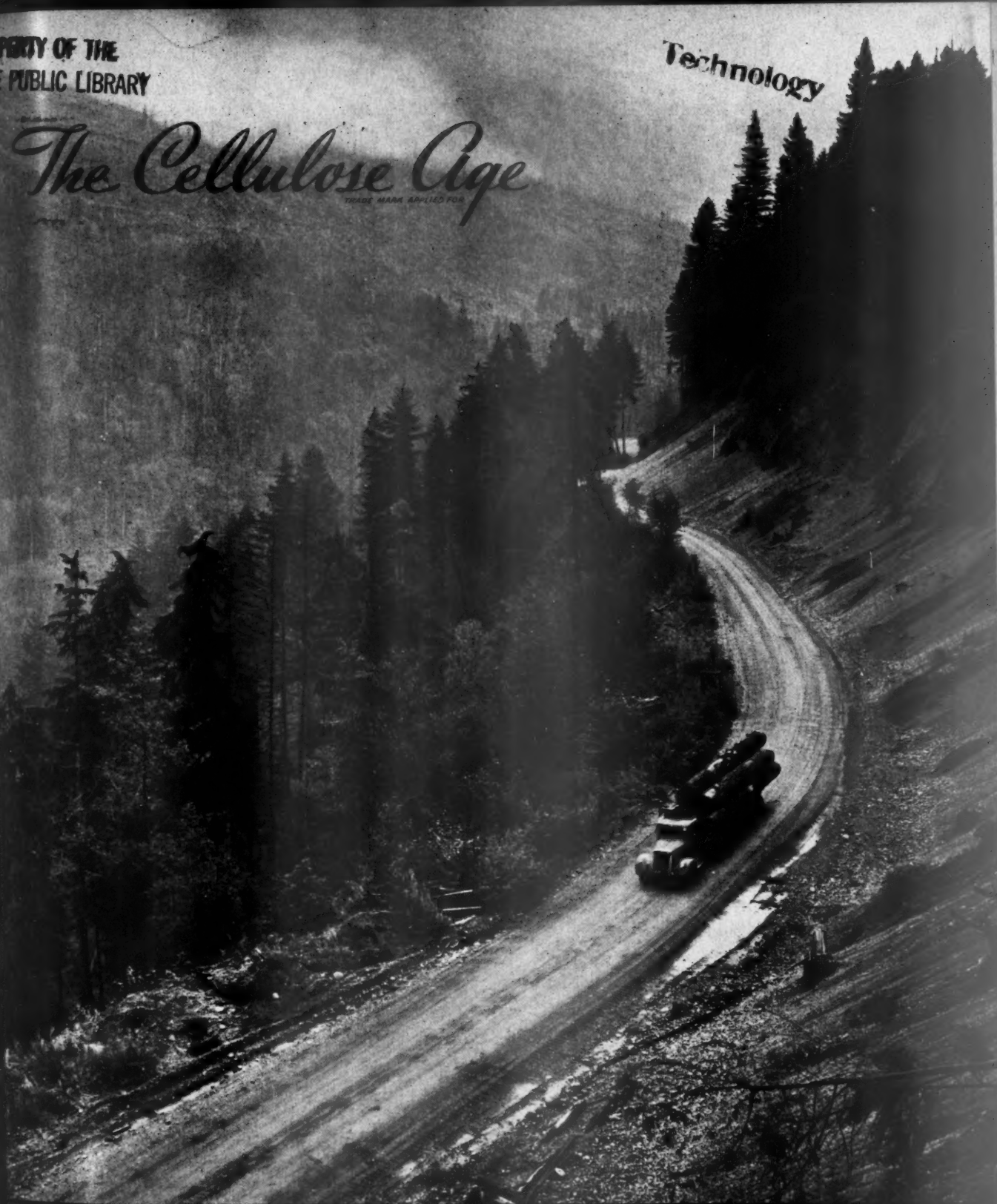


PROPERTY OF THE
PUBLIC LIBRARY

Technology

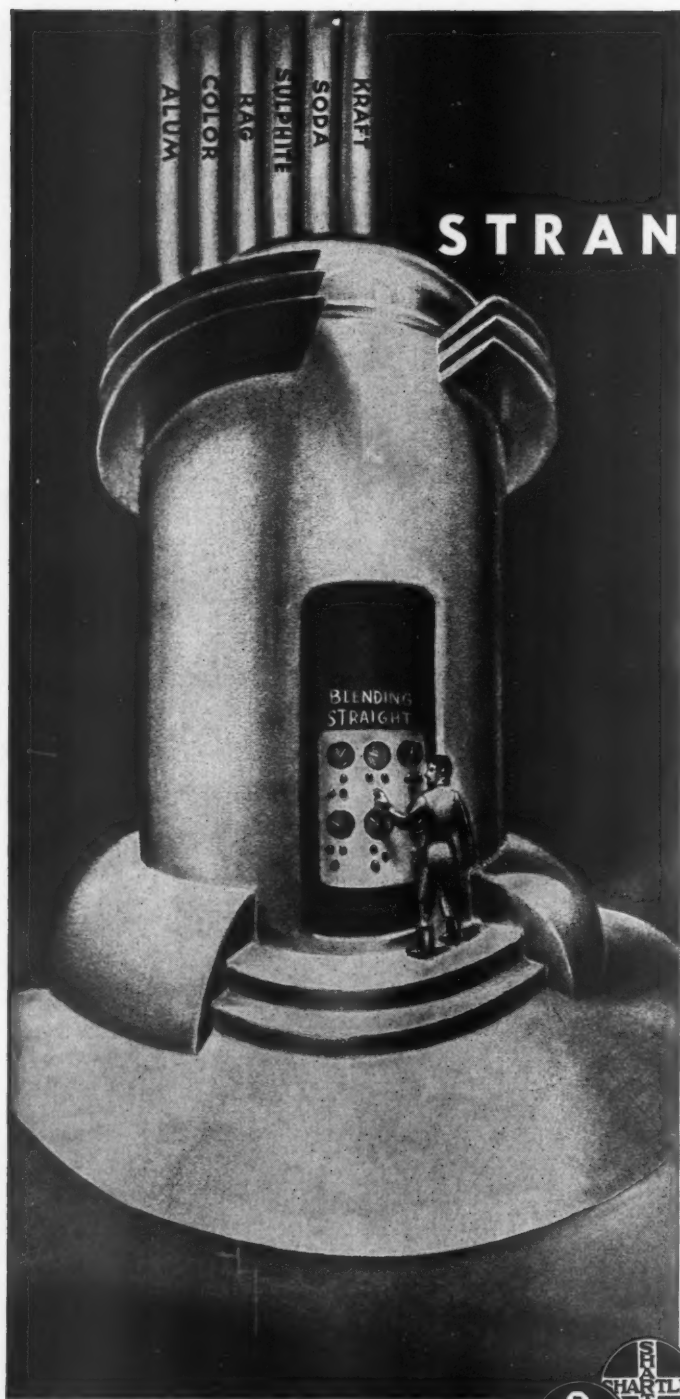
The Cellulose Age

TRADE MARK APPLIED FOR



NOVEMBER • 1943

PACIFIC *Pulp & Paper* INDUSTRY



STRANGER THINGS THAN THIS WILL HAPPEN

Who twenty years ago would have believed that today we would have beaters handling 10,000# gulps of 6% kraft . . . with no more space than the old type Hollander needs?

Who twenty years ago would have believed possible a tiny chest holding but 500# of 6% stock, yet processing it fast enough to keep a big 100 ton machine rolling?

Stranger things than this will happen . . . meaning that our artist's conception of the 1963 refining system may not be so far off after all.

In any case, if you have figured out a way to improve some mill unit or to do something new, lay your idea before our board of strategy. Mill ideas helped create the machines of the past . . . mill ideas will help build the masterpieces of the future. The Black-Clawson Co., Hamilton, Ohio. Shartle Division, Middletown, Ohio. Dilts Division, Fulton, N. Y.



**BLACK-CLAWSON
SHARTLE-DILTS**

NO. 1 IN PAPER MILL MACHINERY RESEARCH

S

N

d have
beaters.
ft . . .
d type

ld have
ing but
it fast
machine

happen
ption of
e so far

ured out
or to do
fore our
d create
ill ideas
of the
amilton,
n, Ohio.

SEARCH

. Entered
a.



*The Journal of the
Pacific Coast Industry*

NOVEMBER • 1943

Vol. 17

No. 11

MILLER FREEMAN
President

LAWRENCE K. SMITH
Manager

ALBERT WILSON
Editor

KEMPER FREEMAN
Production Manager

MILLER FREEMAN, JR.
Circulation Manager

PUBLISHING OFFICE

71 Columbia St.
Seattle 4, Wash.
Tel. MAin 1626

OTHER OFFICES

Chester A. Fee
Associate Editor
1220 S. W. Morrison St.
Portland 5, Ore.
Tel. AT. 9593-9594

Stuart Leete
121 Second St.
San Francisco 5, Calif.
Tel. GA. 5887

Arthur Ponsford
124 W. Fourth St.
Los Angeles 13, Calif.
Tel. MUtual 5857

Charles L. Shaw
675 W. Hastings St.
Vancouver, B. C.
Tel. Marine 1520

SUBSCRIPTION RATES

United States.....	\$4.00
Canada	\$4.50
Other Countries.....	\$5.00
Single Copies.....	.35
Review Number.....	\$1.00

LOGS—

Life Blood of the Great Industries of the West

ON THE COVER is a typical western scene.* In these critical days—with very few logs in the ponds of most pulp mills, plywood mills and sawmills producing vital war materials—it is a scene that gladdens the hearts of government officials and industry leaders who are racking their brains trying to find ways and means of getting more logs out of the woods. For these logs are life blood of many essential industries of the Far West.

A year or so ago, there were men in influential positions who thought most pulp and paper products were about as essential to the war effort as zoot suits. Production was drastically streamlined. Some mills were forced to close. Employees left the woods and mills and now it is impossible to bring them back.

As a result of this whittling down process, there is now a critical shortage of pulp and paper. We hear the radio announcers blaring to us to save waste paper. We read frantic appeals in the press. Some longer and deeper thinking a year or so ago might have made the situation today a little less acute.

If it were not so tragic, it would be amusing today to recall some of the pulp and paper products that were thought to be so non-essential. For instance, production of cellophane and other forms of transparent wrapping, made from the finest grades of pulp produced on the Pacific Coast, came very close to being eliminated and lost for the duration. But the U. S. army and also the medical men stepped into the picture in the nick of time, demanding that production be kept up because they had some very special war uses for this type of paper. Experimental work being done with this product is a military secret.

Even the lightly regarded paper flowers or buttonhole decorations, when threatened with extinction, found unexpected champions in our war veterans and war service organizations which use them in very important fund-raising campaigns.

It is no easy task deciding which pulp and paper products are more essential than others. Solomon's famous judgment was easy compared to those that have to be made today in dividing up the limited amounts of available pulp.

Harold J. Boeschstein, the successful Middle West businessman who heads the new Forest Products Bureau of WPB, suggests in a letter to PACIFIC PULP & PAPER INDUSTRY that paper and paper products manufacturers keep "regulatory action by the government to a minimum" by taking action themselves to eliminate unnecessary products.

The Cellulose Age

THIS is truly the "Cellulose Age" of the woods industries. Up to just a few years ago a view, such as the one on the cover of this issue, showing a truckload of giant western logs rolling down the mountains to sea level, would have meant just one thing as far as the destiny of those logs was concerned. Lumber.

But today these logs are to be used for a variety of products—plywood, paper, smokeless powder.

Treated with chemicals, wood cellulose now becomes alcohol, rayon, photographic film, cellophane, imitation leather, lacquers, glycerine, plastics, felt, sugar, molasses, yeast and food proteins. Articles in this issue outline the uses of cellulose for smokeless powder and for plastics.

Under the impetus of war, searching for new products and improved uses of old products, the chemical engineers and the scientists have greatly broadened the horizons of the woods industry.

In Thorold, Ont., a by-products of the Chicago Tribune's paper mill is alcohol that is being successfully made into synthetic rubber. At Liverpool, Nova Scotia, the Mersey Paper Company and Best Company pioneered in making yeast from wood cellulose.

The most successful process for making alcohol from cellulose comes from Germany. In Germany, Sweden and Japan many new uses of wood cellulose have been developed. The propelling of commercial vehicles by a charcoal gas—already done in those three countries—is being demon-

*The cover photograph shows a truckload of logs speeding down the western slope of the Cascades from Hamilton, Wash. (Skagit County), logging operations of Lyman Timber Company, a subsidiary of the Soundview Pulp Company of Everett.

strated by engineers at the Thorold paper mill. Also by a company in Vancouver, B. C.

The Germans are clothing their armies with "wood wool." They are feeding cattle on a kind of pulp wood. So are the Swedes. The Germans and Swedes are lubricating machines with an oil made from stumps. A cellulose beef (a form of albumen yeast) is being served in European restaurants. Diapers, blankets and bandages are made from cellulose in this country and Europe.

Universalrohstoff

THIS means "the material which can produce anything."

It has been revealed that control of the world's forest supplies has been a basic tenet of Naziism as long as that German cult has existed. It is the raw material on which the Nazis planned to found a world empire.

The Japs' No. 1 U. S. Bomb Target

THERE are a great many people in the United States and Canada who still speculate on "when" or "if" the United States or Canada might be bombed by an enemy.

They do not realize that the United States already has been bombed. Not just once. But twice, and possibly three times.

No doubt right now there are people idly debating whether a city center, an airplane factory or a shipyard would be the objective of a bombing raid.

They do not realize that the enemy has already chosen and bombed its objective. Not a city center, not a shipyard, not an airplane factory. **But a forest.**

In a publication entitled "New Magic in Wood" (which recounts many new uses being made of wood), the American Forest Products Industries, Inc., 1319 18th St. N.W., Washington, D. C., an organization of forest owners, producers and distributors of forest products, points out the interesting fact that the first bombing of the United States by an enemy airplane was in an Oregon forest on September 9, 1942.

The implication of this organization's article was that the enemy decided the way to hurt us the most was by causing a destructive forest fire. It might even be inferred that our most precious possession or the

PACIFIC PULP & PAPER INDUSTRY

This is truly the "Cellulose Age" of the woods industry.

We may yet see an age of lignin, too. Already, lignin (which comprises one-third of the tree) is used for tanning leather, as a binder, a fertilizer base and in production of vanillin flavoring.

The Germans have long appreciated the possibilities in wood. So much so, they have a word for it—

A network of wood-utilization plants have sprung up all over the Nazi European Empire.

But the United States alone has more forest resources than all of Nazi Europe. And Canada's forests are its greatest treasure. These two nations are at last awakening to the realization that their forests are the **Universalrohstoff**.

one most useful in our fight against the Axis powers is our forests.

"No where else could a single incendiary bomb be more likely to do great damage," it stated. That much, at least, is probably true. For incendiaries dropped by only one enemy airplane probably would be quickly put out in a factory or shipyard.

However, it is not just once that Japanese airplanes tried to start fires in our Oregon forests.

There was a second raid on September 29, 1942—just twenty days after the one mentioned in the publication of American Forest Products Industries, Inc.

There were reports of a third attack but this never became more than a suspicion and may have been just a scare.

But in the case of the first, bomb fragments were found in the woods. In the two raids of 14 months ago, the military authorities confirmed the reports.

Fortunately for the cause of the United Nations, 1942 and 1943 have been two unusual years of plentiful rain and high humidity in the great forests of the Pacific Coast. Except for a few weeks in those two war years, the woods were too wet for fire. Otherwise, many more Japanese fliers would surely have dropped incendiaries in the forests.

Eastern Mills Getting Less Western Pulp

● Waste paper collection drives in the east have been failing by fifteen to twenty per cent to meet quotas deemed necessary to keep up production in paper mills, according to reports published in the Chicago Daily News.

A representative of PACIFIC PULP & PAPER INDUSTRY, while on a recent eastern tour which took him to paper mills in Wisconsin, Ohio and Indiana, found that many of these mills had been forced to shut down temporarily because of lack of Pacific Northwest pulp. Most of them were using larger quantities of waste paper, mixed with pulp.

Indicating how close a margin some of the mills work on, a shipment of sulphite pulp from a Puget Sound mill arrived at one of the paper mills visited by this magazine's representative only two hours before it was going to be com-

pletely out of pulp. Because Pacific Northwest pulp is now used largely for smokeless powder, eastern mills' orders have had to be cut drastically.

If winter weather prevents logging in some of the eastern states for any length of time, a number of mills are likely to be forced to shut down.

A Navy Citation

● A letter from the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., addressed to PACIFIC PULP & PAPER INDUSTRY, requested several copies of the October issue containing a special report on the recent TAPPI-sponsored Army-Navy paper requirements conference in Chicago.

"Your efforts in helping to publicize the container problems confronting the Navy," it said, "will help considerably in our educational program to present our message to Navy contractors and container suppliers."

Perfection Twine Co. Makes War Products

● Perfection Twine Company of Camas, Wash., is busy with essential war work these days with products such as new paper twines and army and navy bags being in great demand.

The bag department is making bags for army and navy blankets, as well for packaging army and navy mattresses.

At present the company is supplying paper twines to several different industries as a substitute for other twines which are still difficult or impossible to obtain. These substitutes are used to tie lumber and in packaging of fruit.

A paper twine used to tie wool fleeces has long been a standard product of the Camas plant. Fiber cords cannot be used because the fibers come off in the wool, making it impossible to weave. The Camas company supplies most of the fleece twine used in western sheep raising states.

Pacific Coast Labor Shortage Is Worst In Industry--Boeschstein

In letter to PACIFIC PULP & PAPER INDUSTRY, new WPB Coordinator of all Forest Products industries for WPB, makes suggestions to west coast pulp and paper management . . . "Ag" Hansen, pulpwood chief, appoints E. J. "Opie" Hayes as regional aide in Seattle and plans to come west for meeting with industry leaders on log problem.

IN a letter to PACIFIC PULP & PAPER INDUSTRY, Harold Boeschstein, the new over-all director and coordinator of all the wood cellulose industries for the War Production Board, makes this statement regarding his attitude toward the grave manpower problem on the west coast as it affects all woods industries:

"THE PACIFIC COAST PRESENTS THE MOST DIFFICULT LABOR SITUATION IN ANY OF THE REGIONS FROM WHICH WE GET WOOD PRODUCTS. MANY OF THESE PRODUCTS ARE OF THE GREATEST IMPORTANCE BOTH TO THE WAR EFFORT AND CIVILIAN ECONOMY."

Mr. Boeschstein's views can only bring gratification to the west coast industries, whose needs hereafter will be dealt with by the new Forest Products Bureau of the WPB. Mr. Boeschstein, on leave from his position as president of Owens Corning Fiberglas Corp., is officially the director of this bureau.

In his communication to this magazine, Mr. Boeschstein urged a three point program on the Pacific Coast pulp and paper industry. He declared his bureau would give assistance to companies which have programs for increasing pulpwood production. He urged reductions of weights of pulp and paper and dilutions to make pulp go as far as possible. He recommended elimination of unnecessary production and streamlining to essentials.

In last month's issue of this magazine, we were able to present a rough outline of the new set-up in Washington in advance of general publication of the program.

As stated in that outline, the Lumber and Lumber Products Division, headed by a former Weyerhaeuser executive, Philip J. Boyd, has been placed under Mr. Boeschstein's bureau.

The Pulp and Paper Division has been split into two divisions.

Rex Hovey, on leave as executive vice president of the Oxford Paper Company, New York, heads the new



HAROLD BOESCHSTEIN, Director of the newly organized Forest Products Bureau of the War Production Board, providing for a much-needed coordination of lumber, pulp, paper, containers and printing and publishing divisions.

Paper Division. As stated in these columns, Agner B. Hansen will be in charge of the pulp production function, reporting directly to Mr. Boeschstein, and David Graham will continue to maintain the records and statistics determining pulp allocations.

A new Paperboard Division, taking over all kraft, jute and other types of container and boxboards as well as paperboard cartons and boxes previously handled by the Containers Division, is headed by G. G. Otto, president of Alton Boxboard Company of Alton, Ill., will be also under Mr. Boeschstein. Also functioning in his bureau will be the Printing and Publishing Division headed by Harry M. Bitner.

The remainder of the WPB's Containers Division will continue to function under E. F. Tomiska, director, but will be transferred to the new Forest Products Bureau.

Mr. Tomiska's division is limited to multi-wall shipping sacks; grocery, variety and specialty bags; fiber cans, paper cups, fiber drums, food pails, liquid type containers, milk bottles and closures, as well as textile bags, wooden containers, metal cans, tubes, drums and glass containers.

Arthur G. Wakeman, former head of the now defunct Pulp and Paper Division, is Mr. Boeschstein's assistant and consultant, as was announced previously.

Hayes Appointed Aide

● Mr. Hansen has announced the appointment of E. J. "Opie" Hayes, former log buyer for the St. Regis mill in Tacoma, as his regional aide with headquarters in the White-

Wood Campaign Runs Short of Goal

● Domestic pulpwood production, as represented by mill receipts, while substantially improved since the launching of the newspaper Victory Pulpwood Campaign in August, must be increased during the remaining weeks of 1943 if the 13,000,000-cord goal set by the War Production Board is to be reached, it is pointed out by Walter M. Dear, chairman of the newspaper pulpwood committee.

Monthly deliveries to mills must be stepped up eight per cent above the monthly average for the first nine months in order to meet the WPB goal of 13,000,000 cords for 1943. Mill receipts during the first nine months represents 73 per cent of the goal. September mill receipts totalled 1,208,000 cords, or an increase of 145,000 cords above the monthly average for nine months. Domestic pulpwood receipts by the mills, by region (except in the South, pulpwood deliveries to mills often occupied some time after cutting) with the 1943 WPB requirements, follow:

Region	WPB Goal	August	September	Nine Months
Northeast	1,950,000	207,440	236,000	1,482,000
Appalachian	1,200,000	141,459	120,000	904,000
Southern	6,000,000	571,088	492,000	4,452,000
Lake States	1,650,000	110,712	126,000	947,000
Pacific Northwest	2,200,000	258,422	234,000	1,782,000
Total U. S.	13,000,000	1,289,121	1,208,000	9,567,000

Henry-Stuart Building, Seattle. Mr. Hayes had been functioning for nearly a year as the regional representative of the Pulp & Paper Division in Seattle. His duties are unlikely to be greatly changed.

Mr. Hansen contemplates holding a regional meeting in Seattle to discuss the log shortage and obtain advice and assistance of industry leaders. The date has not been set for this meeting but it is to be attended by Mr. Hansen.

Regional aides are also appointed for Boston, Atlanta, New Orleans, Green Bay, Wis., and Charleston, West Va., and meetings are to be held in all those centers to try to increase pulpwood production.

In the industry, it is hoped that increased production, rather than further restriction, will be the prime objective of the new WPB organization. It is generally agreed that this can only be accomplished by some recognition and relief of the acute manpower crisis in the woods.

Seeks Soldier Furloughs

● The War Manpower Commission has applied to the U. S. Army for furloughs for 2,000 experienced wood cutters to work in the pulpwood forests. Presumably, most if not all of these, however, would be employed in the east. In this connection, an article elsewhere in this issue, reports on the proposed fur-

loughing of Canadian army men to work in the Canadian forests, including those in British Columbia.

An international Combined Pulp and Paper Committee, with one member each for Canada, the United States and Britain, recently made a report that a large deficit of wood pulp in 1944 can be avoided by immediate steps to increase the supply of manpower in the woods.

Chairman of this committee is Charles E. Adams of the Air Reduction Company of New York. Morris W. Wilson, Canadian banker, and Sir Clive Bailleu, member of the Combined Raw Materials Board for Britain, are the other members.

New WPB Forest Products Bureau Under Attack Before It Gets Started

ALTHOUGH not revealed in any press dispatches or other reports from Washington, D. C., the forming of a new Forest Products Bureau of the WPB, headed by Harold Boeschstein, appears to be a hard dose to swallow for the House Small Business Committee.

This comes to light in a perusal of the first interim report of the house committee, which has been received by PACIFIC PULP & PAPER INDUSTRY.

WE FIND THAT THIS REPORT REVEALS "A DISPUTE BEHIND THE SCENES" IN WASHINGTON—A DISPUTE WHICH IS THREATENING THE NEW SET-UP EVEN BEFORE MR. BOESCHSTEIN HAS HAD A CHANCE TO GET HIS SEAT WARM.

Rep. Wright Pitman (Dem., Texas) is chairman of the nine-man Small Business Committee. But the members actually sponsoring this report are a Subcommittee on Lumber Matters—Rep. Henry M. Jackson (Dem., Wash.), chairman, who is now in military service; Rep. Estes Kefauver (Dem., Tenn.), acting chairman, and Rep. William H. Stevenson (Rep., Wis.).

It will be recalled that these three Congressmen held a hearing in Seattle July 12-13-14, attended and participated in by many leaders of the Pacific Coast pulp and paper and other woods industries.

Dan W. Eastwood, chief investigator of this subcommittee, who acted as a sort of attorney in the

Seattle hearing, is the author of the interim report, written as the views and observations of the full committee.

The report deplores what it describes as "pressure" from the pulp

and paper industry which led to the appointment of a WPB "coordinator" over pulp, paper, lumbering and all cellulose industries—namely, Mr. Boeschstein.

But instead of dealing with each branch of the woods industry on an equal plane, which obviously is the objective of the new WPB organization, the committee quite plainly demands that lumber interests should dominate the picture. This seems to be an inconsistent position, and an apparent use of the very "pressure" it deplores to favor one group over another.

The report states "A POLICY DECISION AT A TOP LEVEL OF GOVERNMENT TO DETERMINE THE RELATIVE IMPORTANCE OF MANPOWER, EQUIPMENT, AND OTHER DEMANDS OF THE PULP AND PAPER INDUSTRY AND THE LUMBER INDUSTRY, NOW IN COMPETITION IN SOME OF THESE MATTERS, IS CLEARLY NEEDED."

This is a laudable ideal. But on closer reading it is seen that the policy decision this committee favors would be one made by the Log and Lumber Policy Committee of the WPB, an agency created at the request of the Small Business Committee, and headed by J. Philip Boyd, who is also director of the Lumber and Lumber Products Division of the WPB. Others on this Policy Committee are the price executive of the OPA Lumber Branch, an assistant chief of the U. S. Forest Service, the chief of the materials



JOHN JACOB HERB, PRESIDENT AND CHAIRMAN OF THE BOARD, Westminister Paper Mills, New Westminster, B. C., and Pacific Coast Paper Mills, Bellingham, Wash., celebrated an important anniversary a few weeks ago—his fifty-fifth year in the paper industry.

Mr. Herb entered the industry as a sweeper in a mill at Kaukauna, Wis. He became machine tender there and eventually superintendent. Then he established the Inter-Lake Tissue Mills near St. Catharines, Ont. He came west in the 20's and built his first mill at New Westminster, later the mill at Bellingham.

and equipment branch of the Army Engineers, representatives of the War Labor Board, Manpower Commission, and the Smaller War Plants Corporation.

It should be pointed out that this Policy Committee had achieved some commendable results in its efforts to increase production in lumbering—a release of 4,000,000 feet of Douglas fir logs to the United States from Canada for the last quarters of 1943, increases in some price ceilings, a procedure for using war prisoners in the woods, etc.

But now Mr. Boyd's Lumber and Lumber Products Division has been placed under Mr. Boeschstein, just as have Paper and Pulp Divisions. It seems to have made the congressional committee unhappy. This is what it says:

"Dispute Behind Scenes"

"In recent weeks the paper and pulp industry has initiated a vigorous campaign to secure increased production of pulpwood and has done much to make the nation conscious of a number of problems confronting the woods products industry as a whole. Unfortunately, from the standpoint of lumber production, the campaign on behalf of the paper and pulp industry has largely been confined to a discussion of that particular group's problems and has not included any publicity on the equally important problems of the lumber industry.

"In view of the fact that the same class of woods labor produces logs for the pulp and paper industry as is used by the lumber industry for the same purpose, it is felt in some circles that the production of the raw material should be under the jurisdiction of the Log and Lumber Policy Committee and its members. Until recently this was the case, but pressure from the pulp and paper group recently caused the appointment of another official to act as 'coordinator' of the activities of the various divisions within WPB, charged with any phases of the pulp and paper industry's problems.

"A policy decision at a top level is definitely needed on this matter so that the various agencies may be given some basis for deciding the relative amounts of manpower, equipment, and consideration to which these respective industry groups are entitled.

"It is hoped that such a policy decision may be made at an early date and that it will be based upon factual data submitted on behalf of both groups rather than upon the basis of pressure which comes from a highly organized publicity campaign.

"There is no question about the very essential character of many pulp and paper products, a fact which is apparently admitted by the lumber industry group. On the other hand, there is no question in the minds of the House Small Business Committee as to the essential character of many lumber products, a fact which that committee feels should be taken into consideration by those charged with making a policy decision on this matter. It would be very regrettable if the press itself did not use its power to urge such an immediate decision in view of the wartime need for



TOP-RANKING OFFICIALS OF THE WEYERHAEUSER TIMBER COMPANY, which operates sulphite pulp mills at Everett and Longview, Wash., are shown here with the WPB lumber chief, participating in the Army-Navy "E" award celebration at Longview September 18. The award was for the company's sawmill at that city.

Left to right: J. P. "PHIL" WEYERHAEUSER, JR., Executive Vice President, and CHARLES H. INGRAM, General Manager, both of whom make their headquarters in Tacoma, Wash., and PHILIP J. BOYD, a former Weyerhaeuser executive who is now Director of the Lumber and Lumber Products Division, War Production Board, Washington, D. C.

In order to achieve greater efficiency in the use of the critically low log supply of the nation, Mr. BOYD's division last month was transferred from the Construction and Utilities Bureau, WPB, to the newly formed Forest Products Bureau, which also includes Pulp, Paper, Paperboard, Containers and Printing and Publishing Divisions, all under Coordinator HAROLD BOESCHSTEIN.

so many products of both industry groups.

"We must have paper. Also, many pulpwood products are considered invaluable today in war use. We do not need comic strips nor do we need wood products of the novelty type. Today, the production of both of these is permissible at a time when the production of the really essential products of both industries is being hampered by a dispute behind the scenes which has not been publicized. A policy decision on the relative essentiality of certain paper and pulp products versus certain lumber products is clearly needed from the standpoint of harmony and national wartime need."

For nearly two years since the United States entered the war, the pulp and paper industry was the unwanted stepchild in Washington. Now it at last is getting some attention. It is only being treated equally with other wood users.

The Subcommittee report draws the conclusion that the manpower shortage is the real reason for the lack of logs. That should make it unanimous. It also concludes that the fairness of wages and price ceilings in western states are not disputed, although they are in other areas. It suggests that more hemlock might be needed for the lumbering industry, thereby possibly limiting the amounts of hemlock available for pulp and paper. Here is what it says:

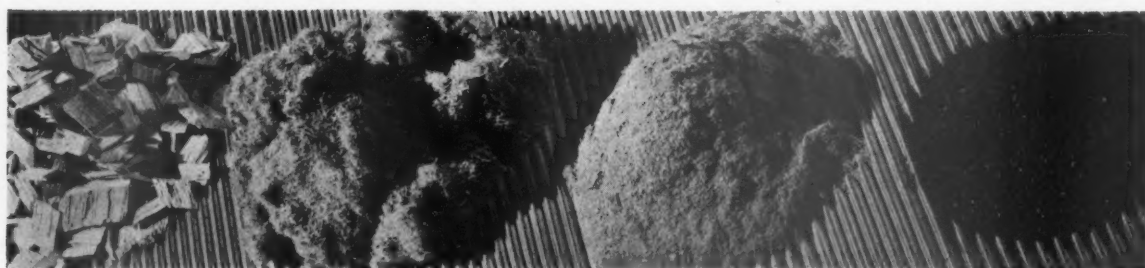
"The committee was impressed with the fact that hemlock is apparently available in large quantities as a substitute for spruce and understands that tests of hemlock shipped to the United Kingdom were made from a mediocre-grade shipment and could not therefore be held conclusive."

First Salvaged Logs Shipped to Powell River

● Experimental utilization of logging slash from the Ladysmith, B. C., operations of Comox Logging & Railway Company by Powell River Company will form the theme of discussion at one session of the Pacific Logging Congress in January. The site has not been decided.

J. P. Sheasgreen, superintendent of Comox Logging Co.; C. D. Orchard, chief forester for British Columbia; Angus P. MacBean, assistant forester, and possibly Harry Andrews, control superintendent of Powell River Company, will take part in the discussions.

No important change in the general program has been made in recent weeks, according to Jimmy Sheasgreen. So far only a small amount of logs of random length have been shipped from Lady Smith booming grounds to the pulp mill, but the shipments will increase in volume during the winter months.



HERE ARE SHOWN FOUR STEPS IN THE UTILIZATION OF REDWOOD WASTE as a plastic by the Pacific Lumber Company. The processes are described in the article on these pages. Shown from left to right: Redwood chips—plastic pulp—pulverized pulp—formulated molding powder. This is the complete cycle of redwood conversion.

Pacific Lumber Company Makes New Plastic From Redwood Waste

In cooperation with Institute of Paper Chemistry, California firm makes intensive study of possible uses of waste wood. Pulp processes and results are described. Plastic steering wheels, bottle caps, light plugs are made. Redwood bark is used as a textile fiber in mattresses, blankets, upholstered furniture, etc.

ONE of the most intensive conservation and utilization programs in the woods industries of North America has been carried on by the Pacific Lumber Company of Scotia, Calif., since 1936.

One important discovery is a new plastic derived from redwood mill waste. Starting right from scratch, with a determination to develop a fundamental and complete knowledge of all the properties and possibilities of redwood, the California company has made studies of the use of this wood in tanning, antioxidants, flotation agents, antiseptics, medicinal uses, textiles, pulping, destructive distillation, hydrogenation, insect sprays, etc.

In this article is discussed the development of the plastic. Also, at the close of the article is briefly described the use of the redwood bark as a textile fiber.

A. S. Murphy is president of Pacific Lumber Company and E. E. Yoder is the manager.

Research studies in behalf of this company and financed by it have been conducted for a number of years by the Institute of Paper Chemistry at Appleton, Wis. An inspiration for these studies was the well known fact that the giant redwood—*sequoia sempervirens*—which grows 200 feet or more high, is highly resistant to rot, even after fallen trees have lain in forest muck for hundreds of years. Conscious of the great waste of redwood in the northern areas of California (it grows in the area extending from 100 miles north of San Francisco to the Oregon border) the company

began long ago to study ways of using mill waste wood and saw kerf as well as waste in the forests. It commercialized a type of prestologs and the use of the bark for insulation and textile fibers.

As a result of the plastics research, a new redwood thermo-plastic called "Shellerite," of black and brown hues, was developed. It embodies in one composite form both binder and filler required in the molding of a countless variety of products such as screw bottle caps, electric light plugs and sockets, automobile steering wheels, storage battery cases, roller casters for furniture, wire cord reels, etc. From its composite form fine quality finished products of good tensile strength and appearance are produced. In cases where special properties are desired, it can be further compounded under various formulations with other resins or plasticizers.

Investigation into the various components of redwood to determine the reason for its great ability to resist rot and decay, led to the discovery of redwood's plastic properties. Each of the important components of redwood were isolated and investigated. It was thus discovered that the water-soluble catechol tannin fraction of the wood converted, through the processes of nature, into insoluble phlobaphenes became the principle element responsible for redwood being characterized as a permanent wood.

In attempting to extract the thermoplastic properties distributed throughout the walls and cells of

the wood, it was found that redwood chips could be reacted with steam at elevated pressures. The resultant plastic pulp fiber which retains all but the gaseous decomposition products of the wood, may be molded directly, in its converted form.

A Report on Research

A description of the research into plastic properties, made before a meeting of the American Society of Mechanical Engineers by Harry F. Lewis, of the Institute, is summarized as follows:

The principal constituents of redwood are much the same as those of other trees, namely, cellulose, lignin and the large group of carbohydrates known as the hemicelluloses, including both pentosans and hexosans. The remainder consists of materials soluble in water and/or organic solvents, which give redwood its longevity and high resistance to mold and bacteria.

According to a breakdown made by the Institute of Paper Chemistry, there is in redwood sapwood 33.8% lignin, 12.9% pentosans, 56% C and B cellulose, 4% polyuronides and 1.65% cellulose/lignin. Heartwood gives 36.4% lignin, 12% pentosans, 53.4% C and B cellulose, 3.9% polyuronides and 1.65% cellulose/lignin. Stumps give different percentages. Roots are quite different, giving 37.6% lignin, 8.4% pentosans, 55.4% C and B cellulose, 3.2% polyuronides and 1.47% cellulose/lignin.

Percentage of alcohol-benzene solubles in the sapwood is 1.6%, in lumber, 7.3%, in stumps, 16.3% and roots, 28.9%. Hot water solubles are 2.8% in sapwood, 7.5% in lumber, 12.9% in stumps and 17.8% in roots. Extractives amount to 10.2% in heartwood, 20.1% in stumps and 32.3% in roots.

Amount of ether solubles in all cases is less than one per cent, therefore the amounts of esters, fats, oils, resin acids and waxes are less than that amount. The alcohol-benzene extracts yielded large amounts of reddish-brown non-crystalline substances. Redwood tannins are of the catechol type.

Alcohol soluble components of red-

NOVEMBER • 1943

wood, calculated to original bone dry wood, are: In sapwood, 1.9% alcohol extract, 0.7% phlobaphenes and 0.2% tannins; in heartwood, 13.2% alcohol extract, 6.2% phlobaphenes, 4.1% tannins, 1.3% cycloses and 0.3% reducing sugar; in green stumps, 15.8% alcohol extract, 7.6% phlobaphenes, 4.1% tannins, 2.2% cycloses and 1% reducing sugar; in old stumps 13% alcohol extract, 3.2% phlobaphenes, 3.8% tannins, 1.9% cycloses and 0.7% reducing sugar, and in roots 32% alcohol, 22.1 phlobaphenes, 7.8% tannins and 1.1% reducing sugar.

Therefore, different parts of the waste are preferable for different uses. For example, roots or stumps would be preferred for tanning. The rot-resisting properties of redwood stem from this tannin.

Because of poor flow characteristics and the fact that the product is not particularly water-resistant, molding redwood flour alone is not a commercial operation. High pressure—about 5000 PSI and 320 F is required for producing a simple disc. Sapwood cannot be made into a molded article of any importance. Roots, however, give a more interesting product. Redwood flour molding is improved by adding plasticisers such as glycerine. Also a hardener, such as hexamethylene tetramine, makes it possible to mold a product which is strong and water-repellent.

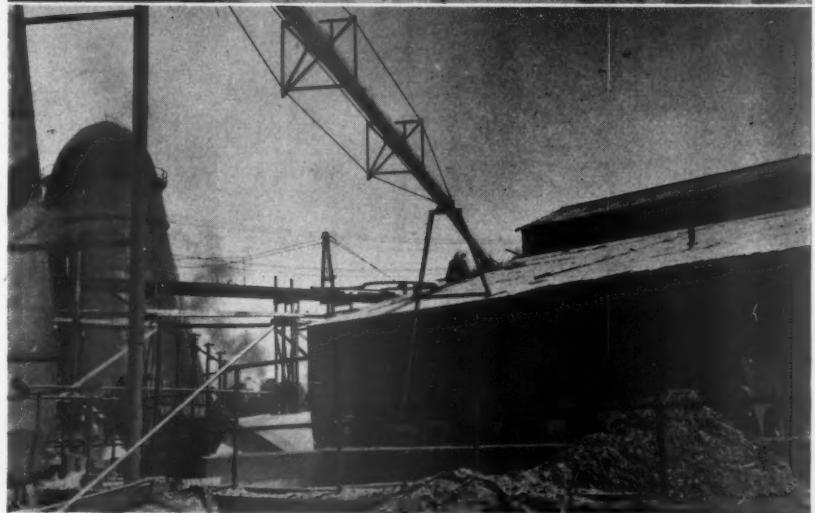
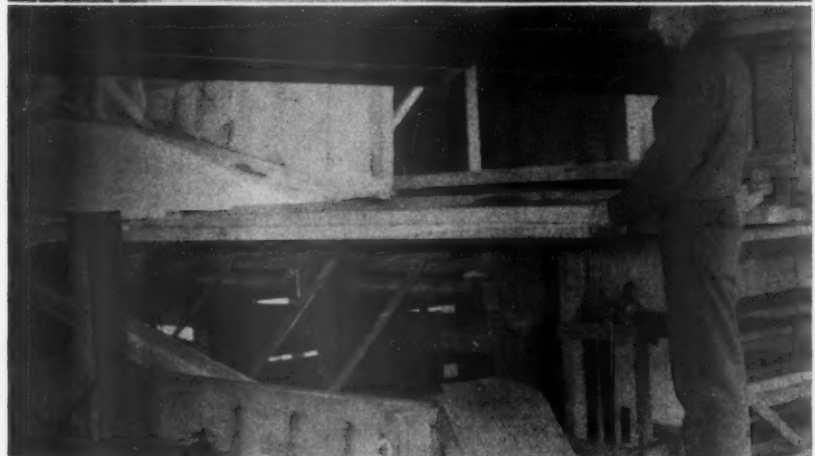
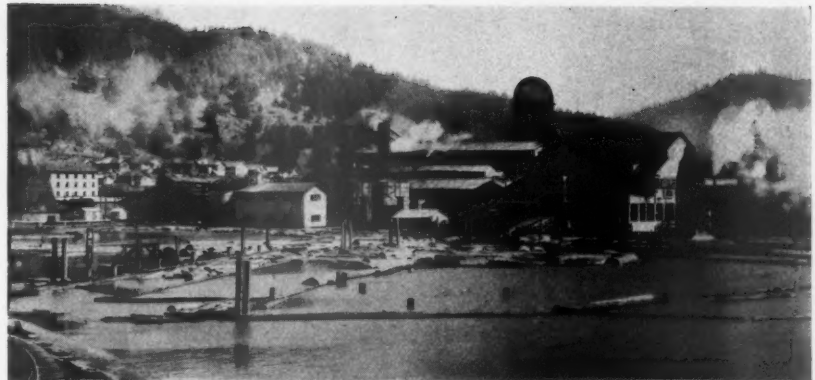
Test pieces made with 3% glycerine, 5% hexa and 0.5% condensation black and molded at 4000 to 5000 PSI and 320 F, had these characteristics: Impact (Charpy unnotched) 1.03; tensile, 6450 PSI, flexural, 10433 PSI.

Redwood may also have emergency use, it was found, as an extender for scarce phenol-formaldehyde resins, although lacking the water resistance of the straight phenolics. A powder of this type was made with stumpwood flour mixed with 25% Durez 114, 0.5% calcium stearate and 0.5% carbon black. These ingredients were mixed for 90 minutes, milled for 1 1/4 minutes at 210 to 240 F and then ground. The molding powder should be preheated for two minutes at 100 C. After curing at 150 C for two hours, this product gave better impact and water resistance.

Plastic Pulp Is Superior

● A redwood plastic pulp was found to be much superior to redwood flour as a base for further plastic operations. This pulp, similar in appearance to chewing tobacco, was the result of cooking redwood waste with steam at high pressure, whereupon the tannins and phlobaphenes were modified and combined with modified wood substance.

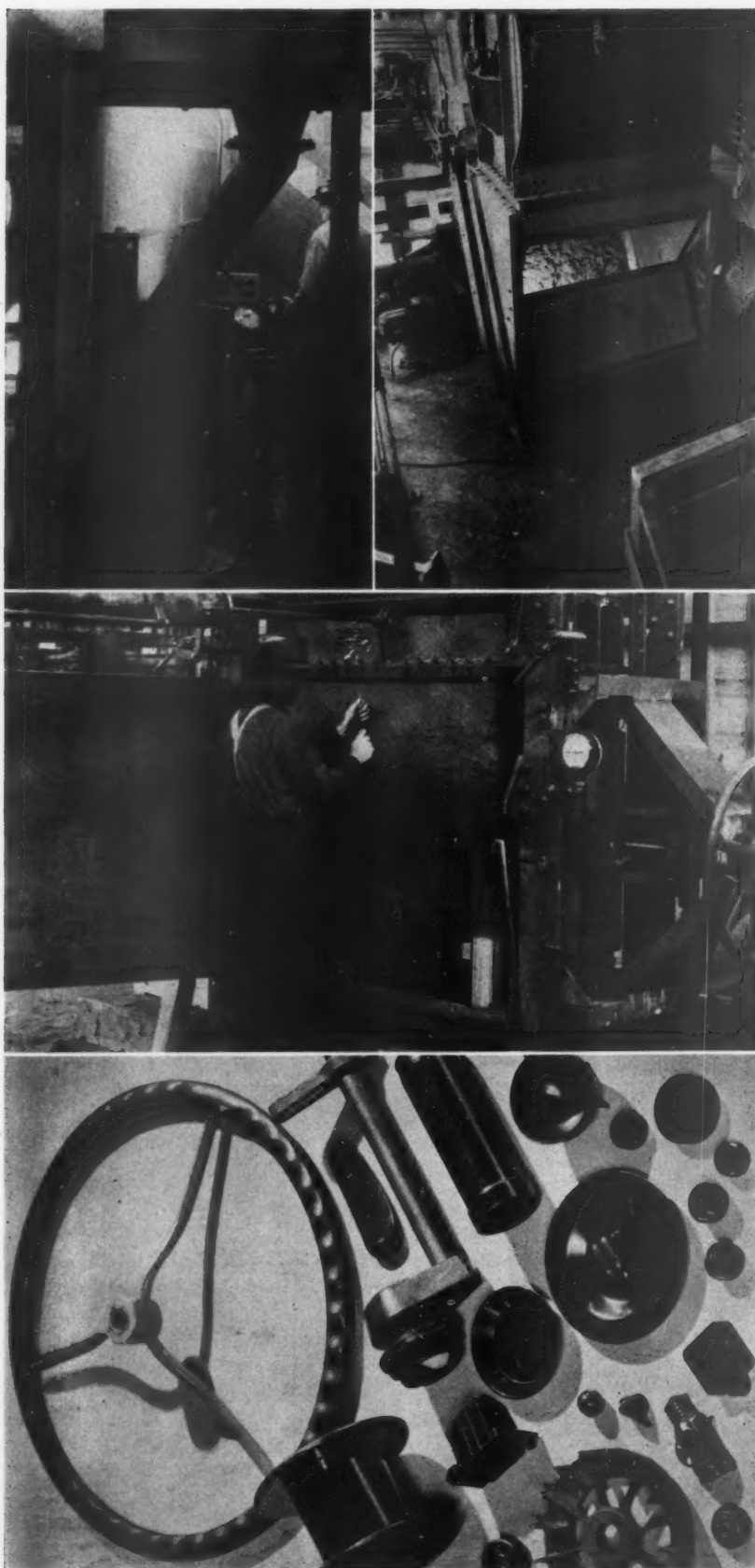
When molded at 4000 PSI and 300 F, this pulp has these characteristics: Impact (Charpy unnotched) 0.58; tensile, 5480 PSI, flexural, 7700 PSI, and water pickup, 2.5 to 3%. The product may swell and become sticky when exposed to high humidities. But, alone or mixed with lignin or Vinsol, a product results which has good flow and finish and moderately satisfactory physical characteristics. The characteristics of the molded composition are: Impact (Charpy unnotched) 1/2 by 1/2 inch pieces, 0.45; tensile, 6700 PSI; flexural, 8000 PSI, and water pickup in 24 hours (ASTM), 2 to 2.3%. Many articles have been molded from a 95-5 basic formulation. The formula has the advantage of being



THE PACIFIC LUMBER COMPANY, at Scotia, Calif., is shown in the top photograph. The main building is the sawmill. This photograph is taken from across the pond from the fiber plant. The plastic plant is the darker building to the left of the power plant and to the right of the burner. The burner is the cone-shaped structure at the extreme left.

The middle photograph shows selected redwood waste from edger saws of the sawmill being fed into a chipper.

Below is a view of the plastic plant. Chips of uniform size and shape are transferred by the enclosed air conveyor shown here leading into the plastic plant.



STEPS IN PRODUCTION OF PLASTIC PULP FROM REDWOOD

Upper left: Chips are drawn from storage bins and enter steam digester, where conversion into plastic pulp takes place.

Upper right: Plastic in pulp form is conveyed by volumetric feeder to process drying.

Middle view: Plastic pulp is compressed into bales after which it is weighed for shipment.

Lower view: Samples of redwood molded plastic products. Here are shown an automobile steering wheel, wire cord spool, ash tray, light holder, etc.

cheap and available in large tonnage without the use of any critical materials.

Molding Formulations

● Next step in the research was production of thermosetting molding formulations. First came conversion of tannins and phlobaphenes to a resinous composition with normal wood chemicals, as a result of its cooking operation. These were further condensed with a resinous material developed at the Institute in Appleton. The resin and redwood plastic pulp were then condensed together by milling in the presence of a catalyst to the desired point at which they polymerize in the mold to yield the finished product. The product's characteristics: Impact (Charpy unnotched), $\frac{1}{2}$ by $\frac{1}{2}$ inch piece, 0.37; tensile, 5000 PSI; flexural, 6500 PSI, and water pickup, 1%.

Strengths are not as high as for the straight pulp. But greater water and acid resistance makes it more interesting for commercial use. Conventional bakelite molds can be used.

Based on the laboratory findings a plant was specially designed and erected by The Pacific Lumber Company at their mills in Scotia. Select waste is graded and fed into a chipper from whence chips of uniform size and shape are pneumatically transferred by air conveyor into large storage bins in the new plastic plant. Automatic conveying equipment withdraws chips from storage and transports them to the steam digester where they are subjected to high pressure steam under the controlled process. After conversion from redwood chips, the plastic pulp is dispatched by means of a volumetric feeder through a dryer-conveyor to a hydraulic baler. Compressed bales are then tied, weighed and registered before being shipped east to the Sheller Manufacturing Corp. of Portland, Indiana, where the material is put into use in its raw plastic form; or reduced to plastic powder; or further compounded with other resinous plasticizers. For certain purposes the pulp is used alone; for other applications shredded rags may be added to provide increased impact; for still others, hardening agents may be em-

STEPS IN PRODUCTION OF A TEXTILE FIBER FROM REDWOOD BARK.

At top, thick bark is stripped from redwood logs. Notice size of log in relation to the man.

Next is shown huge hammermill shredders which loosen and separate the fibers in the bark. The bark, cut into eight-inch lengths, is fed into the hammermill shredders from a storage bin.

The third view is of a battery of drying ovens. Fiber is fed into ovens, then passes through a cleaning process where it is "willowed," screen sifted and subjected to further condensing and drying treatment.

At bottom, the textile fibers being compressed into bales. These bales are sawed in half for more convenient handling and shipment.

ployed in small quantities. In some instances reactive chemicals such as furfural, phenol, aniline or a form of lignin may likewise be used.

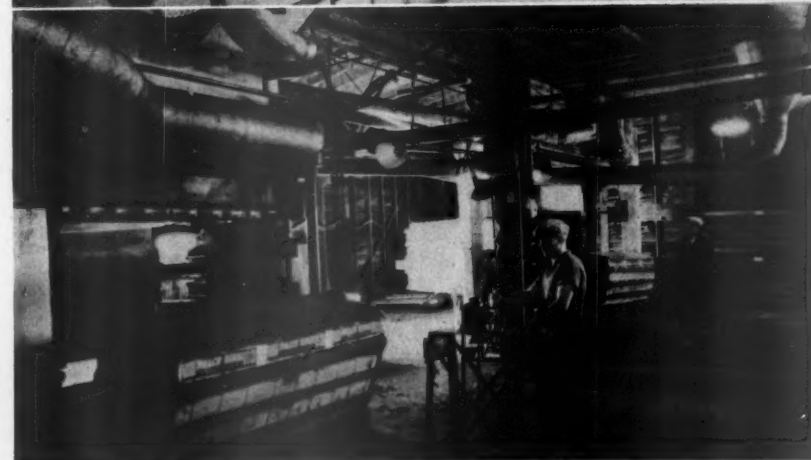
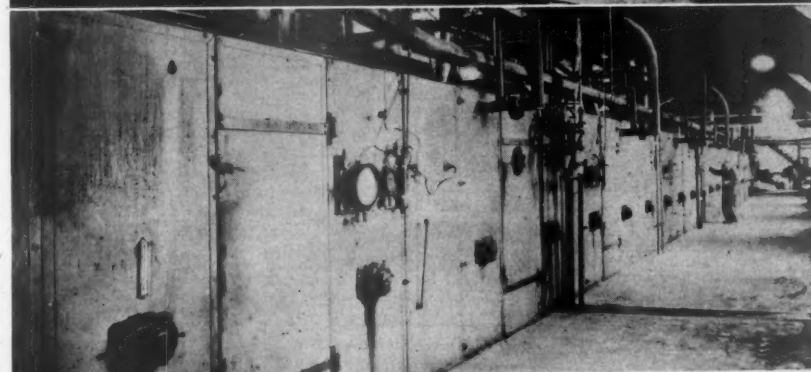
Textile Fiber From Bark

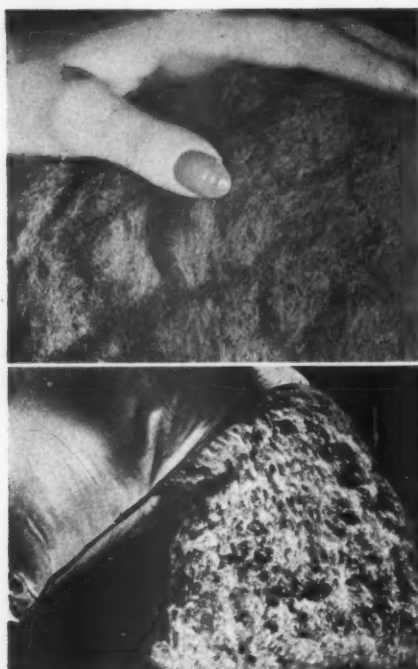
● Although the thick protective bark of the giant California redwoods has long been widely used as a highly efficient temperature insulating material in homes and refrigeration plants all over this country, it was not until recently that its fine qualities as a textile fiber were discovered. In utilizing former redwood waste, these as well as other contributions of The Pacific Lumber Company are the direct outgrowth of their extensive conservation program. As the result of exhaustive study and research following the original discovery that redwood bark fibers had a natural tendency to interweave themselves into felt-like balls and mats, redwood bark fibers are now being blended in varying percentages with cotton to produce resilient cotton batting for mattresses, comforters, pillows, upholstered furniture, etc. Combined with wool they are employed in the making of soft, warm, light-weight blankets and fabrics.

In physical appearance these bast fibers measure about one half inch in length. They are sharply pointed at each end and possess a ribbon-like twirl comparable to the twist of a corkscrew. As they are not subjected to washing or chemicals in their treatment, they retain all of their lignin and natural chemical properties. In texture they feel somewhat like dry wool. It is these qualities plus their high coefficient of surface friction that account for their permanent affinity for cotton or wool in blended mixtures.

In the process of reducing redwood bark to textile fiber, large slabs of substantially dry bark peeled from the logs, first have the epidermis and cambium layer removed. Pieces of bark up to eight inches in length are then fed into huge hammermill shredders to loosen and separate the fiber by releasing resinous matter, cork cells and broken fiber. The composite material then passes through a textile fiber preparatory process where it is "willowed," screen sifted, and subjected to condensing and drying treatment.

Redwood bark fiber imparts a lasting





ABOVE IS A HANDFUL OF THE TEXTILE FIBER MADE FROM REDWOOD BARK. Below is shown mixed equal quantities of the redwood fiber and cotton, the blend which is used in pillows, mattresses, comforters, etc. The resilient batting which results from this blend (shown here coming out of a pillow) is more flexible, more resistant to moisture and has less tendency to mat down and become lumpy than if cotton alone were used.

resilience or flexibility to cotton which reduces the tendency for cotton to mat down or become lumpy. Inherent resistance to moisture and humidity is another attribute which is introduced by redwood fiber into cotton batting. In warm sultry climates where humidity is considered a serious devitalizing factor, these fibers retain their resilient support, keeping cotton fluffed. Their non-absorptive resistance to perspiration and moisture-laden breath further enhances their value. Mattresses made from the blended fibers are much less bulky than all-cotton mattresses, which is an important consideration from the standpoint of portability in handling and transporting.

Argentine Problems

● J. A. Strong, Canadian commercial attache at Buenos Aires, reports that notwithstanding that the production of wood paste and chemical cellulose has risen in the last three years from 25,000 to 55,000 tons annually, the Argentine paper industry must still import 40,000 tons of pulp a year in order to maintain production at the high level reached in 1942.

During that year shipments from Sweden enabled requirements to be met easily and also permitted the accumulation of stocks with which the industry will be able to carry on without difficulty until the end of 1943.

The development of the industry might be adversely affected by a lack of Four-drainer brass cloth, which can be imported from the United States only.

Kraft Board Drums With Steel Ends Used to Ship Asphalt Overseas

● One of the widely expanding war-time uses for paper is the manufacture of various sizes and types of drums with convolute board sides and metal tops. Unusual strength and resistance to heat and seepage have been attained.

Pacific Steelfiber Drums, Inc., 1025 Westminster Avenue, Alhambra, Calif., has had marked success in producing these drums. The Standard Oil Company of California is using the drums of different sizes for shipping asphalt as well as greases and gear lubricants.

These Steelfiber drums have passed difficult tests for filling with heated materials such as asphalt and resins, which solidify on cooling. It has been demonstrated that materials heated to 450° F. caused no deterioration of the drum on filling.

Standard of California ships asphalt for air fields for the United Nations fighting forces in the 55 gallon Steelfiber drum, made of 16 point kraft paperboard convolutely wound and with 12-inch steel friction end covers. These drums weigh only 14 pounds each empty as compared with weights of up to 24 pounds for other types. The steel ends

extend about one inch up the walls to protect contents from injury when standing on wet floors.

Strength Demonstrated

The chimes and the heads and bottoms are designed flush with each other, to make stacking easier and safer. The chimes extend beyond the walls so that the container rolls on the chime, not the walls. The chimes also form a hand hold that will not fold under with average weight.

Two of these drums, standing on end and filled with 468 pounds of asphalt, have resisted the crushing weight from above of 8400 pounds of corrugated iron sheets, 26 by 60 inches, which were piled on top of them.

In cases of filling with hot asphalt, the makers assert that the material itself will flash before the kraft board ignites. The absence of all joints, seams or splices in the walls and a reinforced bond secured between the walls and steel ends, obtained by a patented expansion process, prevents leaks or seepage. The containers are also described as "vermin proof."

The board is laminated in four to 18 plies, depending on requirements of products to be packed or shipped. Steel is 24 to 28 guage.

The laminated layers are bonded with an adhesive which is resistant to moisture, heat and cold. Ends of the walls are folded double and doubly glued. This provides reinforcement for what the company describes as a positive bond between the steel ends and the walls, obtained by its patented expansion process. The more pressure put on, the tighter the bond becomes, it is explained.

Standard Oil Company of California is shipping successfully large amounts of greases and grease lubricants in 108 pound (14-gallon) containers of this type. These products were formerly packed in all-metal containers.

B. C. Plans Forest Industrial Survey

● Problems of the pulp and paper industry will be dealt with in the over-all forest industrial survey to be undertaken shortly for the British Columbia government.

Beyond stating that the government is determined to get all the facts so as to be able to formulate an intelligent long-range program, Premier John Hart told PACIFIC PULP & PAPER INDUSTRY that the actual procedure to be followed is yet to be decided.

The government may proceed with the conventional method of appointing a royal commission headed by a supreme court judge to accept evidence from all interested parties, or it may appoint a recognized authority on forest industries—perhaps someone now a resident in Canada, to choose his own way of surveying the situation and making his recommendations accordingly.

Harry Andrews Visits Mills

Harry Andrews, control superintendent of Powell River Co., Powell River, B. C., has returned to the coast after visiting several pulp and paper mills in eastern Canada.



ASPHALT FOR AIR FIELDS FOR OUR FIGHTING FORCES and those of our Allies are shipped by Standard Oil of California in these 55-gallon barrels with paperboard sides and metal heads. Note the ease with which the empty containers are handled. These "75 per cent paperboard barrels" are made by PACIFIC STEEL-FIBRE DRUMS, INC., ALHAMBRA, CALIF.

The side walls of the drums are made of .16 Kraft paper and are convolutely wound. With its 12-inch friction cover, this size drum weighs only 14 pounds. Other type containers for the same use weighed up to 24 pounds.

The Process of Producing Smokeless Powder From Wood Pulp

WITHOUT wood pulp the armed forces of the United Nations might have been without enough powder to defend themselves from the Axis, much less go on the offensive.

In the present shortage of wood pulp for newsprint and other uses, it's a pretty safe bet that the missing wood pulp is being used in Europe and the South Pacific in the form of rifle and cannon powder.

Utilizing a process developed by Hercules Powder Company, smokeless powder is now being made from cellulose from wood pulp as well as from cotton linters.

The use of wood pulp has averted a possible serious bottleneck in smokeless powder production because of the tremendous demands of the war program on cotton linters in rayon as well as in smokeless powder.

In the past the manufacture of smokeless powder began with the nitration of purified cotton linters. American and European chemists attempted to find a method of using wood pulp as well as cotton, anticipating a time when the supply of cotton would not be sufficient.

Hercules research chemists began working on the problem in 1934. The work was done at the company's Parlin, N. J., plant by Ralph L.



FOR ADAPTING WOOD PULP TO THE MANUFACTURE OF SMOKELESS POWDER AND THEREBY INCREASING THE VITAL PRODUCTION OF WAR EXPLOSIVES, RAPHAEL S. STERN (right), chemical superintendent of the Parlin, N. J., plant of Hercules Powder Company, was presented with a citation of merit by the U. S. Army Ordnance Department on October 4.

The award, which cites Mr. Stern for "distinguished service to his country in the struggle to maintain the freedom of all people, was presented on behalf of Major General L. H. Campbell, Jr., chief of ordnance, by Col. Gilbert I. Ross, chief of the New York Ordnance District.

By using wood pulp as the raw material for smokeless powder, American, Canadian and Australian explosives plants have increased powder output by one quarter, while reducing cost of production by about \$20,000,000 in American ordnance plants this year.

Before Mr. Stern attacked the problem of adapting wood pulp for its production, smokeless powder was manufactured solely from cotton linters. The Hercules process of adapting wood pulp as developed by Mr. Stern not only increased output but reduced powder consumption, power plant installations, amount of equipment necessary, and cost of the finished product. The Hercules Company made available the wood pulp development without cost to the governments of the United Nations and to all American producers as soon as it had been found effective.

Washington State pulp producing companies cooperated in the experimental work by supplying wood pulp in the form and according to the specifications required for smokeless powder. The pulp and paper companies developed a standard grade of wood pulp in a special size suitable for the experimental work. Through this cooperation, the wood pulp requirements of the United Nations' explosive industries are now such that they can be met easily by wood pulp producers in all of the United Nations.

OF SPECIAL INTEREST TO EMPLOYEES OF PACIFIC COAST MILLS

In last month's issue of **PACIFIC PULP & PAPER INDUSTRY**, high Army and Navy officers were quoted as authorities for the statement that more than one-half of the smokeless powder made in the United States is produced with a high quality of wood pulp from Pacific Northwest mills.

On this page, we present an article from the Hercules Powder Company which describes the process of manufacture in making this wood pulp into a propellant for all sizes of bullets and shells. This is the first opportunity that many employees of the pulp mills have had to read a detailed and accurate account of what happens to the rolls of pulp they produce, after these rolls arrive at eastern arsenals.

Smokeless powder is NOT only a product of nitric acid and cotton linters, as stated in a recent published report. In fact, more than half of smokeless powder today is a product of nitric acid and wood pulp.

Set off by a spark, smokeless powder's progressive slow-burning rate of explosion—which varies for different sizes of projectiles—is controlled by the size and shape of the grain.

Smokeless powder blending plants are several stories high. Descending out of them and to the ground are circular, enclosed safety chutes by which all employees can slide to the surrounding grounds and safety, in event of a fire.

Visitors from pulp mills have told of how they must surrender matches when visiting these plants, how they are escorted everywhere by guards, how the employees wear special shoes that will not give off sparks and how the plants are spread over wide areas in order to limit the extent of any fire or other disaster.

All of this information has been most interesting, but now for the first time an authorized detailed description of the manufacturing process is given, in which Hercules Powder Company gives credit to the Pacific Coast pulp companies which have participated in this important war work.

Stern, chemical superintendent of the Parlin plant.

The Hercules engineers were looking for a process that would enable wood pulp to supplement the use of cotton in the manufacture of smokeless powder and still obtain a good powder in large quantities.

They also were trying to avoid a wholesale change in the equipment of plants designed for the manufacture of nitrocellulose from cotton. If they could utilize the commercial grades of wood pulp and fulfill the other requirements, valuable time and money would be saved.

Pacific Coast wood pulp manufacturers cooperated in the experimental work supplying wood pulp in the form and according to the specifications required for the smokeless powder work. The Hercules company credited these companies with giving assistance. Rayonier Incorporated of San Francisco, Soundview Pulp Company of Everett, Wash., and the pulp division of Weyerhaeuser Timber Company

of Longview, Wash., developed a standard grade of wood pulp in a special size suitable for the experimental work. Through this cooperation the wood pulp requirements of the United Nations' explosives industry are now such that they can be met by all wood pulp producers.

Hercules made available the wood pulp developments without cost to the governments of the United Nations and to all American producers as soon as they had been found effective.

Steps in Nitration

● The nitration of purified cotton or wood pulp, the first step in the manufacture of smokeless powder, is accomplished by adding cotton linters or wood pulp to mixed sulphuric and nitric acid.

After nitration the nitrocellulose is pumped to a centrifugal wringer, revolving at a speed of 1000 R.P.M. where as much of the excess acid as possible is extracted. It is then "drowned" in cold water and moved to the boiling tubs.

The nitrocellulose is then boiled in acidulated water to break down the unwanted chemical compounds which have formed in the process. After this it is transferred to beating or cutting machines where it is ground under water. This finely ground or pulped nitrocellulose is boiled in alkaline and fresh water and then given cold water washings to remove all impurities.

At this point the nitrocellulose enters the actual "powder line." In the Dehydration House a charge of wet nitrocellulose is dumped into a hydraulic press and compressed into a block. Alcohol is pumped through the block in the press forcing out the water.

The dehydrated nitrocellulose is then broken into small pieces; ether, alcohol, and certain stabilizing chemicals are added, and the ingredients mixed until a mealy mass is formed.

Blocks Pressed Thru Dies

● The mixed powder is then formed into blocks about 12 inches in diameter and 24 inches long and the blocks placed in a press where the powder is forced through a fine mesh screen. The material is then reblocked.

These blocks are subjected to a pressure of several thousand pounds per square inch, pressed through dies and come out in long spaghetti-like strings into fiber buckets. These strings have either one or seven longitudinal holes formed by the dies and are fed into cutting machines which cut them into grains of the desired lengths. The diam-



STEPS IN PRODUCTION OF SMOKELESS POWDER

(Above) Women have replaced men in many jobs in the smokeless powder industry and in this picture we see them operating "FINAL WRINGER" MACHINES. Nitrocellulose is pumped to these machines, which revolve at a speed of 1100 R.P.M. where as much excess acid as possible is removed.

(Below) CUTTING MACHINE — One of the steps in the manufacture of smokeless powder from wood pulp. The operator is feeding strands of powder, which look like strings of macaroni, into the machine which cuts the strands into grains of desired lengths.

eter and length of the grains are varied according to the ballistic characteristic required.

The powder grains are then taken to the solvent recovery building where they are treated for several days and most of the ether and alcohol recovered and are taken to the "water dry" where they are placed in hot water. When the solvent

content has been reduced sufficiently, the powder is placed in the air dry house where warm air blown over and through the powder dries it further.

Rifle powders are glazed with graphite to make them flow freely, but cannon powders do not require a glazing. The rifle powder is then sieved and the cannon powder sort-

PASC Hear Discourse On Paper Industry Electronics

FORTY-THREE members and guests attended the regular monthly dinner meeting of the Papermakers & Associates of Southern California at the Rosslyn hotel in Los Angeles on October 21. W. A. Kinney, president of PASC, assisted by John Van Ounsem, secretary, conducted an interesting meeting. Mr. Kinney is production manager of the Pioneer division, The Flintkote Company, and Mr. Van Ounsem is technical director at the same mill.

The subject for the evening was "Electronics at Work." The speaker was John Fiske, Los Angeles, electronic control expert of the Westinghouse Electric & Manufacturing Co. With him, to assist in the demonstrations were two Westinghouse application engineers, C. B. Stitt and C. A. Montgomery. His paper will be published in next month's issue.

Mrs. Fiske laid the foundation for his talk by stressing the fact that electronics were not something new in industry, but rather the conception of an "electrical magician" went back a long time, almost to the Civil War. "There has been too much mystery surrounding electronics," he declared.

As to application of electronics to the paper industry, Mr. Fiske came armed with charts showing a number of ways in which the science is being applied. Following his talk he showed a sound motion picture, and then conducted some demonstrations, including one featuring air cleaning. He described electronic motor controls for different kinds of paper manufacturing and paper converting machinery.

"Electronic motor controls now being placed on the market," he said, "offers wide ranges of speeds and other controls and are so far ahead of present methods of control as to be in a class by themselves."

A short business meeting was held. In the absence of Robert A. Baum, assistant chief chemist, Fernstrom Paper Mills Inc., Pomona, Calif., who is chairman of the educational committee, President Kinney reported that progress was being made in the plan to conduct groups of high school students through various paper mills, and that letters explaining the plan had already been sent out. The tours were expected to encourage students to

choose the pulp and paper industry as a life work.

Mr. Kinney suggested the appointment of a new committee with duties to keep the organization abreast of new developments in the paper industry and with current affairs, such as manpower shortages, etc., vitally affecting the industry in all its phases. The research work would culminate each month with brief talks before the members by a committee leader. No action was taken on this proposal at the October meeting; nor did President Kinney ask for any.

Heads Forest Research

Dr. Verne L. Harper has been appointed chief of the division of forest economics of the Forest Service, U. S. Department of Agriculture, Chief Forester Lyle F. Watts reports. He succeeds Dr. P. W. Nelson, who recently transferred to the Bureau of Internal Revenue. The work of the division of forest economics includes developing essential information on costs and returns from forestry and determining the possibilities of profitable forest land management under different conditions in different forest regions.



UNLOADING MIXER—one of the first steps in the production of smokeless powder from wood pulp. Nitrocellulose, ether and alcohol were mixed with the necessary stabilizing chemicals at controlled temperatures.

ed to remove imperfect grains. Various batches are blended in blending houses to obtain powder of uniform ballistics and finally packed ready for storage or shipment to loading plants.

Jaite Bags Replace Textile Containers

● The use of the Multi-Wall Paper Shipping Bags, which the Jaite Paper Bag Company, St. Helens, Ore., manufactures, has greatly increased during the war due to the shortage of various types of textile containers of certain grades and as a replacement for other containers in which there is a critical shortage.

The war uses of the multi-walled bag have brought new requirements of high wet strength and proof against water. In a recent issue of this magazine (March, 1943), an article described how these bags, made of several layers of Kraft and asphalt laminated sheets, are floated ashore to soldiers and marines.

Practically 100 per cent of the production of the Jaite Paper Bag Company is going directly and indirectly into the war effort, according to C. W. Akin, of the St. Helens plant. Their bags are used particularly in packing chemicals, rock products and food products.

For overseas shipment of food products to the armed services the Jaite bag is used as an overslip bag for an inner cotton bag in which the food is contained. These foods include all types of dried foods, and especially flour.

Salem Company Expands

Lloyd Riches, manager of Western Paper Converting Company, of Salem, Ore., announced recent expansion of his company's production by 20 per cent with operation of an auxiliary plant. The company, which makes stationery, has obtained some ruling equipment.



TECHNICAL SERGEANT DONALD E. HUTTON, aged 24, on leave from Pioneer Division, The Flintkote Company, Los Angeles, was taken prisoner in Germany after his plane was shot down on May 14 over Kiel Naval Base. Tail Gunner in a Flying Fortress, he was twice wounded on six combat missions and won the Purple Heart and Air Medal. He writes that he is being treated well.

A brother, Lieut. **JOHN W. HUTTON**, was last reported piloting a general's plane in the Mediterranean area.

Big Influx of Women Employees Is Handled Successfully at Soundview

By IRENE DUNCAN

Women's Personnel Director,
Soundview Pulp Company, Everett, Wash.

A TRANSITION period is usually difficult in any line, but particularly so where women replace men in a business where men have held complete sway—however, we have today 150 active and, we have reason to believe, happy, women in our employ.

Our transition period is about over and from now on we should be able to go into other departments, as yet untouched, if or when the need arises, with confidence and the assurance that we CAN do our part and do it well.

Our first women started work March 12 in the mill proper, and most of the original crew are with us now. We have over thirty women in the woodmill—some of them doing work which men, working there, had predicted just couldn't be done except by men. Some of these men are their best boosters now.

Modified Certain Jobs

● In employing women, we found it necessary to modify certain work as well as alter certain operating devices and machines so as to make the work more suitable for women. In some instances we have found it better to rearrange the disposition of the work so that men could handle the heavier part while wo-

● The author of this article, Mrs. Irene Duncan, had merely made the usual application to the Soundview Pulp Company for a secretarial position when she was picked for the important post of women's personnel director at this, the largest unbleached sulphite pulp mill in the world.

Since taking up her duties last March 9, she has supervised the employment of about 150 women at the Everett, Wash., mill. Her husband is resident manager of an oil company in Everett.

The Duncans have lived in Everett for the past four years, but she had not been working outside her home until engaged by Soundview. But, prior to moving to Everett, she had done general office work for a construction company in Seattle, a position in which she often was entrusted with considerable responsibility. Before this, also in Seattle, she had served as secretary of a branch office of an insurance company. She was born in Montana; moved to Seattle at the age of one.

Mrs. Duncan's record and personality convinced Leo S. Burdon, general manager of the Soundview Pulp Company, that she was suited for the new position of women's personnel director. Women were being employed for the first time in the history of this mill and new conditions called for a division of the work which had been handled by William Gorbett, the personnel director. Mr. Burdon's judgment in selecting Mrs. Duncan has been confirmed by the results since the first women were employed in the Everett mill six months ago.

men do the lighter work, with a corresponding adjustment in the wage scale. This has worked out to the satisfaction of both the men and the women.

Incidentally, we had certainly expected at least an undercurrent of resentment on the part of some of the men, especially as the men throughout the plant have always taken a personal pride in their accomplishments; but, instead, the women have had the whole-hearted cooperation of them all. There are, of course, new problems arising always but they are usually overcome with what we call plain, common sense and a sympathetic understand-

ing of the problems and of the workers themselves, for—though they are considered as a group—this group of women is made up of individuals having divergent personalities, backgrounds and training.

Some of these women have never worked before outside their own homes. Some are working either to add to their service allotments or to keep occupied during their husbands' absence. Some are working to give their children medical care or to take care of their futures. Some just need the work to make a living. And then some wanted to help as best they could to keep essential products moving into the war effort.

Came "In Fear"

● The majority of the women have never worked in a mill of any kind and come "in fear and trembling," but, as a rule, they feel at the end of the first day something like one of the girls in the sawmill. When she went to work she seemed almost horrified at the noise there, but when we asked her how she liked the work, as she checked out at the shift's end, and whether the noise bothered very much, her reply was "fine—but what noise?"

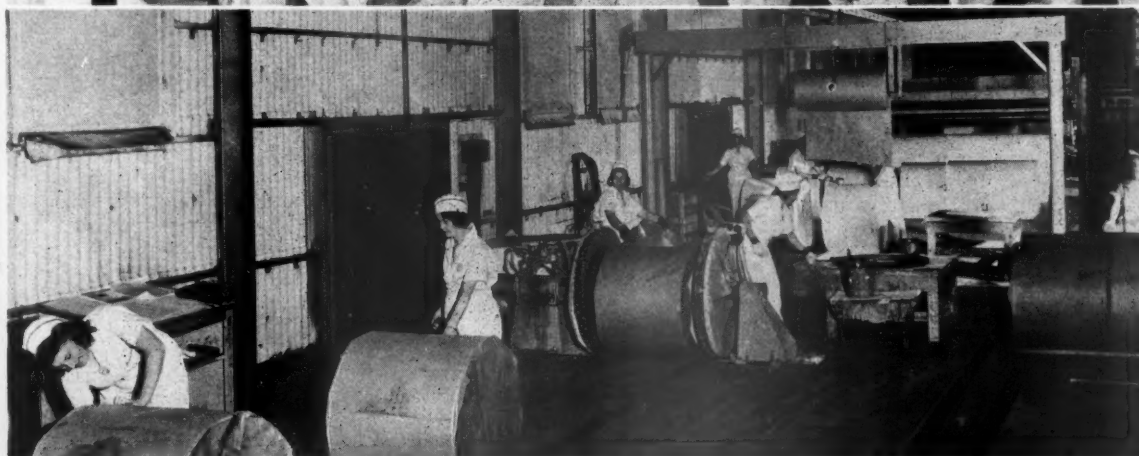
One of the most difficult problems seems to be in dealing with women who are so very anxious to do something helpful in the all-out war effort, and who are completely unsuited for most of the work. But, even in these cases, we have found that, by using tact and thoughtfulness, they do come to understand and have, without exception, done what they could to help in different ways. Several have been instrumental in securing others who could do the work, and therefore have definitely helped.

Then there are young women who have worked here for a while and bring in their mothers. In some instances, we have been able to place them to mutual advantage. This word-to-mouth recommendation has been our best solution to the shortage of women—we have sisters, husbands and wives, mothers and daughters, cousins and friends—and the term "one big, happy family" might aptly apply.

Most of all, we have a bountiful



IRENE DUNCAN, Women's Personnel Director, Soundview Pulp Co., who is the author of the article on this page.



IT HAS BEEN FOUND DESIRABLE IN SOME MILLS WHERE THERE HAS BEEN AN INFLUX OF WOMEN EMPLOYEES DUE TO THE WAR, to provide them with uniforms or similar costumes. It solves the "clothes problem" for the ladies. And, particularly in pulp and paper mills, it is considered a contributing factor to neatness and cleanliness, reflected in the handling of the finished product.

ABOVE: A GROUP OF SOUNDVIEW PULP COMPANY'S women employees in their new attractive uniforms. Top row (left to right): EVELYN AARESTAD, LOUELLA KRAMER, NOLA NORRIS, FERN HEINZEN, SUSANNA BALLINGER, MYRTLE WILLIAMS, LADLYN FINGER and MYRTLE CLINGAN. Bottom row (left to right): LILLIAN BARNETT, FREEDA HOWELLS, VELMA BUCHANAN, CAROL AARESTAD and CLELLA YOUNGEDYK.

BELOW: A NUMBER OF THESE WOMEN, employed in the rewinding room at Soundview, are shown handling and wrapping the finished rolls of specialty pulp.

supply of cooperation and goodwill from the management at the top to the lowest rung of our employee personnel—and, with this, we expect to maintain the smooth-running order prevailing in the organization, before it was invaded by women.

Some five million women are now at work, with a vast number new to industries of this nature, so the helpful and instructive articles written in the past few months have

been appreciated, and we are grateful to those who, like Mrs. Berney of Camas, share their information and knowledge.

(This is a reference to the article entitled "Wartime Women Employees Bring New Personnel Problems," by Mrs. Vera Whitney Berney, assistant personnel supervisor, Crown Wilmette Paper Company, Division of Crown Zellerbach Corporation, Camas, Wash., which was published in the March, 1943 issue of PACIFIC PULP & PAPER INDUSTRY).

Pim On Committee

● Harry C. Pim of Pacific Mills, Ltd., was one of three western Canadian representatives on the post-war foreign trade committee of the Canadian Manufacturers Association which recently drew up a series of recommendations for national policy.

One of the suggestions of the committee was that manufacturers be enabled to maintain in wartime at least token shipments of regular commercial exports to former customers in specified markets so as not to lose their identity.

Laminating Papers

By A. H. CROUP*

In the October issue of PACIFIC PULP & PAPER INDUSTRY, R. V. Haslanger, Monsanto Chemical Co., Springfield, Mass., discussed in an article the subject of "Applications for Pulp and Paper in the Plastics Industry." This article is a corollary to that one, dealing with one particular field of plastics. Mr. Haslanger outlined the general applications and uses of resins. In the present article the use of paper in laminated plastics is briefly reviewed.



DR. ALFRED H. CROUP, Acting Chief Physicist, Hammermill Paper Company, Erie, Pa., who prepared this article especially for PACIFIC PULP & PAPER INDUSTRY.

strength properties than unbleached but it has other advantages due to cleanliness where strength is unimportant.

Sheet Filler Materials**

● The use of paper as a base or filler for the thermosetting resins is not new. For years, rag, alpha and kraft pulps have been made into papers suitable for treating with natural and synthetic resins. These papers have one property in common, high absorbency. Lately it has been found possible to make a paper from a sulphite pulp that also has satisfactory absorbent properties.

The kind of papers that are used for lamination are determined largely by the end use of the finished product and by economic considerations. The various types of papers, however, have certain qualifications which make one paper more desirable than another for a given specification.

Rag paper has been considered the best filler for laminating materials because it is tough and has excellent absorbent properties. It is, however, expensive.

Alpha paper, made from purified wood cellulose, is used widely for surface sheets where uniformity in appearance is essential and where transparency and colors are desired.

Kraft paper is the least expensive of available materials and is the most widely used. Kraft paper provides good mechanical and electrical properties.

Certain special unbleached sulphite papers when treated with low-pressure phenolic resins and laminated have been found to provide exceptionally strong mechanical properties. The plastic also has good electrical insulating properties. Bleached pulp has somewhat lower

Treating or Impregnating

● In general, treating machines apply the required amount of resin and dry the paper to the correct volatile content. The actual method of application and drying depends upon a number of variables; as the type of resin, the solvent used, the kind and thickness of the paper, the resin content in the paper, and upon the construction of the particular machine in question. The papers may vary in thickness from .002" to say .017". The resins are usually dissolved in either alcohol or water and the resin content of the impregnated paper may vary from approximately 30% to 60%. These are relatively wide limits, and the actual choice of conditions is, of course, determined by the specifications demanded for the finished product.

For a given machine, a typical procedure is to dip the paper down into the resin bath and then pass it through squeeze rolls which control the amount of resin pick-up. The paper then passes through a drying oven to evaporate the solvent to the desired volatile. The volatile may range from 3% to 6% for the alcohol soluble resins, and may go as high as 10% to 12% for water soluble resins. For an alcohol soluble phenolic resin the oven temperature may be of the order of 285° F. and the paper speed from a few feet per minute to 80 or 90 feet per minute. Usually lower weight papers and lower resin contents can be run at the higher speeds.

Laminating or Curing

● The paper is now ready to be laminated into its final cured state. The principal requirements are time, temperature and pressure but again these variables have quite wide limits, depending upon operating

conditions, the type of materials used and the finished product desired. The temperature is usually from 300 to 350° F. but the pressure may vary from 50 to 2500 pounds per square inch and the time from a few minutes to hours depending upon the thickness of the material.

Flat panels are laminated by stacking the necessary number of sheets of the treated paper to give the desired thickness between the heated platens of a hydraulic press and subjecting them to the proper temperature and pressure.

Laminated molded products are often produced by cutting strips or preformed sections of the material and assembling these in a mold to which pressure is applied either in a hydraulic press or by a bag molding technique.

Molded tubes and rods are made by winding the treated paper on mandrels and placing the unit in a closed mold to which heat and pressure are applied. In the case of the rods, the mandrel is small and is removed before molding.

Rolled tubes are made by wrapping the treated paper on a heated steel mandrel. Additional rolls apply pressure to the tube as it is being wrapped. The heat and pressure melt the resin and bond the paper. The assembly is then cured in an oven for from 6 to 18 hours and at a somewhat lower temperature than that used in the pressed or molded methods.

Properties

● It is neither possible nor the purpose of this article to go into a lengthy discussion of the properties of laminated materials. The essential data can be found in any plastics hand book.

Laminated products usually have higher mechanical strength properties than molded products. Normally, they are unaffected by mineral oils, vegetable oils, alcohol, benzol, gasoline, and most acids except the concentrated acids. The materials do swell on long exposures to steam and they are affected by caustic solutions. Some of the laminates show a slight darkening on aging or on exposure to weather or sunlight. Certain laminates made according to rigid specifications have quite high dielectric strengths.

The laminated materials may be fashioned and worked by all of the normal machining operations as sawing, drilling, milling, punching, tapping, threading, etc. Generally, tools operate best at high speeds except where the cuts are so large as to cause overheating of the material and tool.

*Acting Chief Physicist, Hammermill Paper Company, Erie, Pa.

**Asbestos paper, glass fiber sheets and cloth fabrics, although widely used as fillers are not included in the discussion on sheet filler materials.

Spokane Mill Hears Mexicans May Be Employed in Woods

● Farmers and commercial loggers can make money hauling logs for any distance up to a radius of 35 miles of the mill, said C. A. Buckland, general manager of the Inland Empire Paper Company of Millwood, Wash., near Spokane, in commenting on ways and means of relieving the critical log shortage.

Harold T. Chesbrough, yardmaster for the mill, said the best truckloads of cottonwood hauled in by independent operators totaled around 3,000 feet each for a farm truck.

"We are getting some loads by truck," said Mr. Buckland, "and most of them come from commercial loggers rather than farmers. There are some farm woodlots in this area that would produce cottonwood trees, one of the favored pulpwood varieties, but this source is not so prominent as it is in the east and south."

Wood received by truck this year by the Inland Empire Company so far totals about 250,000 board feet. That is less than a week's arrivals by truck as recently as 1940. In August of that year truck arrivals were 1,894,330 feet, often running better than 20 truckloads a day. Now days go by without a log entering the road gate.

There are five shippers by truck now as against 55 in August, 1940, according to Mr. Chesbrough, who uses little paper now in keeping his truck records.

Rail shipments also have fallen off, but not so greatly in proportion. Total log receipts run around 60 per cent of the figures for 1940.

Labor shortage both in woods and mill is blamed by Mr. Buckland for the curtailment.



CHESTER A. BUCKLAND, General Manager of Inland Empire Paper Company, Millwood (Spokane), Wash., who suggests farmer-loggers can make money these days.

● Word has reached the plant from San Francisco that arrangements are under way to import woodcutters from northern Mexico. Whether they will reach the Pacific northwest Mr. Buckland was not yet informed.

British Pulp Imports Down 80 Per Cent

● E. A. Holmes, deputy controller of paper for the United Kingdom, spent several days in British Columbia late in October, visited several of the mills and conferred with executives of the industry.

"The United Kingdom has been forced to curtail imports of pulp and paper to the barest essentials," Mr. Holmes told a representative of PACIFIC PULP & PAPER INDUSTRY. "Today we are importing barely 20 per cent of the pulp we used to bring in before the war, and we are making maximum use of it."

After the war, however, there will be a swift revival of imports and the British Isles will look to the Pacific Northwest for a good share of their requirements, said Mr. Holmes.

Wrapping paper for retail sales in British stores is practically non-existent, he reported, and customers have grown accustomed to accepting goods unwrapped as a wartime necessity. Newspapers are reduced to four pages in many instances and magazines also have been forced to cut down their use of paper.

"British mills have done a wonderful job in converting waste paper, and straw has been used almost exclusively to replace esparto grass that used to be imported from Africa for the manufacture of stationery and similar paper stock."

Killam Appointment

Lawrence Killam, president of British Columbia Pulp & Paper Co., has been appointed regional solid fuel representative in British Columbia for the Canadian department of munitions and supply. The duties involved are similar to those previously held by Mr. Killam as regional advisor to British Columbia's coal and fuel wood administrators.

Paper Production Increased in Java

Plans have been made by the Jap invaders to increase production of paper in Java, which formerly depended upon Japan and Scandinavia for most of its supply, according to reports reaching the U. S. Department of Commerce.

Raw materials being used in producing pulp for Java's three paper mills are straw, kapok waste, and old paper, the core of a certain plant, and a variety of pine.

Anti-Paper Law Invalid

Paper containers may now be used by dairies in Reno, Nev. A district court decision ruled that a 1936 city ordinance requiring glass bottles only was invalid. The present city administration did not try to defend the ordinance.

Giving Nazi Tanks "The Blues"

● If you miss your old friend colored Scotch tape, take heart in the fact that it is now being used to decorate "presents" for Hitler and Hirohito. "The presents" are cannon shells to be delivered with the least possible delay, and single strips of bright Scotch tape act as a gasproof, waterproof seal on the individual shell container on its way to the front. The color tells at a glance what kind of shell is inside.—Zellerbach Paper Co. "Informant."

New Rayonier Operations Chief Tours Pacific Northwest

● Edward Bartsch, newly elected executive vice president of Rayonier Incorporated, made his first Pacific Northwest tour since taking over that position during the latter part of October.

This was not, however, Mr. Bartsch's first Northwest visit, as he has been in that area three times in the past several years. On his latest visit, he called at the Rayonier and other operations and held numerous conferences with Morton B. Houston, vice president of Rayonier Incorporated, with headquarters in Seattle, and with many other industrial and civic leaders of the Pacific Northwest.

Mr. Bartsch visited new Rayonier logging operations on the Olympic Peninsula.

The new operations chief of Rayonier interests is not only making a deep study of all the problems of

his own company but is inquiring as to what may be done to advance the pulp and paper industry as a whole.

Edward M. Mills, president of Rayonier Incorporated, came from San Francisco to Seattle to be with Mr. Bartsch during part of his stay in the Northwest.

Before leaving on October 26 for his New York headquarters and his Long Island home, Mr. Bartsch told a representative of PACIFIC PULP & PAPER INDUSTRY that he planned to be in the Pacific Northwest frequently in the future, as well as in the Southeast section of the country, where Rayonier also has operations.

A World War I veteran and a Chase National Bank executive for many years, Mr. Bartsch has had considerable experience in handling of industrial reorganizations.



OFFICERS OF COOS BAY PULP CORPORATION, operators of mills at Anacortes, Wash., and Coos Bay, Ore.:

Left to right: J. L. OBER, Chester, Pa., Acting President; W. R. SCOTT, 3rd, Chester, Pa., Treasurer; F. C. MCCOLLOCH, Portland, Ore., Secretary, and WILLIAM CARNEY, Chester, Pa., Controller. The Vice President and General Manager of the corporation is C. WYLIE SMITH, of Coos Bay, whose photograph is on the opposite page.

Mr. Ober and Mr. Scott were recently elected directors of Scott Paper Company, the parent firm of the Coos Bay Pulp Corporation. Mr. Ober is Acting Vice President of the Scott Company, in charge of production at the main plant in Chester. Mr. Scott—no relation to the founders of the firm—is also Treasurer of the Scott Company and heads its legal department.

Ober Heads Coos Bay Pulp Corporation; Operations Staff at Anacortes Announced

● The mill that "came back"—the Anacortes, Wash., mill of the Coos Bay Pulp Corporation—has now entered its third continuous month of operation since being authorized to resume by the WPB.

Increased uses by the armed services of tissue and towels and shortages in these products was the reason for resumption of the mill's operations. It is producing 70 to 75 tons a day of unbleached sulphite pulp which is allocated

by the WPB to the parent company, Scott Paper Company of Chester, Pa., makers of tissue and towels. A Coos Bay, Ore., mill also supplies Scott Company with pulp.

Completion of the executive staff for the Anacortes mill is announced by C. Wylie Smith, vice president and general manager of the Coos Bay Pulp Corporation, as follows:

Herman L. Hansen, resident manager.

Jesse R. Lewis, general superintendent.
Cliff Reynolds, chief chemist.

Dan Daly, log buyer.

Walter Mower, assistant superintendent.

Charles Splain, night foreman.

The mill has been running on a 6-day week since reopening after the Labor Day holidays. About twelve per cent of the crew are women. There are 75 employed in the pulp mill and additional 30 in the sawmill and chipping opera-



ABOVE ARE THE THREE MEN IN CHARGE OF THE OPERATIONS at the Anacortes, Wash., division of Coos Bay Pulp Corp.

(Left to right): C. WYLIE SMITH, Vice President of Coos Bay Pulp Corp., and General Manager of operations at both Anacortes and Coos Bay, Ore.; HERMAN L. HANSEN, Resident Manager at Anacortes, and JESSE R. LEWIS, General Superintendent at the Puget Sound mill.

tions which are in the nearby Morrison lumber mill. Most of the logs for the Anacortes mill come from the Coos Bay Corporation's own holdings in the upper Skagit area.

Operations were running smoothly enough by the first of November that Mr. Smith left for Coos Bay, to oversee the operations there for several weeks. Since midsummer, he had been almost continuously at Anacortes.

The mill was one of the three on Puget Sound shut down November 1, 1942 by a WPB order arising out of a critical log shortage.

Campbell Resigns

● Due to ill health, William S. Campbell, of Chester, Pa., has resigned his positions as director and officer of both the Scott Paper Company and the Coos Bay Pulp Corporation.

J. L. Ober, of Chester, is now the acting president of the Coos Bay Pulp Corporation and also is chairman of the board of directors. In a statement published in last month's issue of this magazine, Thomas B. McCabe, president of the Scott Company, announced the election of Mr. Ober, acting vice president of the Scott Company, to membership on the parent company's board of directors. W. R. Scott, 3rd, of Chester, secretary-treasurer, also was elected a director.



THOMAS B. McCABE, President of Scott Paper Company, Chester, Pa. The Coos Bay Pulp Corporation is a wholly owned subsidiary of the Scott company.

In the Coos Bay Pulp Corporation, other officers besides Mr. Ober are: Mr. Smith, vice president and general manager; Mr. Scott, treasurer; F. C. McCulloch, of Portland, Ore., secretary, and William Carney, Chester, controller.

New Scott Product

● Typical of the new uses for Scott products, the company has received a large government order for a small package of special toilet tissue to be included in the U. S. Army's Ration K. Heretofore, there has been no tissue in these rations and it is now added for reasons of health. The compact Scott product is folded to a size not much larger than a package of gum.

Postwar Planner For Scott Company

J. C. R. Whitely, general manager of the Marinette Paper Company in Wisconsin, has been appointed director of postwar planning for the entire Scott Paper Company, which has a subsidiary operation of two pulp mills on the Pacific Coast.

Mr. Whitely took over his new post September 1.

A number of large companies in various industries have recently created "postwar planning" departments.

Pacific Coast Fine Paper Industry Leaders Advise OPA Officials on Price Adjustments

● Fine paper merchants of seven western states whose prices were not covered under MPR 400 of the OPA, met at the Hotel Whitcomb, San Francisco, October 25, to discuss alternate plans for the approach to price control of fine papers in these seven states at the merchant level.

Presiding at the meeting was Charles

B. Hammen, senior price analyst, paper and paper products branch, Office of Price Administration, Washington, D. C.

"It's the plan of the OPA," said Mr. Hammen, "to bring these merchants out of the general maximum price regulation into a specific regulation tailored to suit their needs. We hope to have this plan perfected by the first of the year.

"I found these western paper merchants most alert, cooperative, and patriotic," said Mr. Hammen, who used to be in the converted paper products business in New York before he went to work for Uncle Sam.

Those participating in the meeting are shown in the photograph on this page.



AN INFORMAL INDUSTRY ADVISORY COMMITTEE for the Pacific Coast fine paper merchants met in San Francisco recently to consult with OPA officials on price regulations. Those in attendance were:

Seated (left to right): E. EMBREE, Carter Rice & Co. of Washington, Seattle; MARCUS ALTER, Commercial Paper Corp., San Francisco; CHARLES B. HAMMEN, OPA, Washington, D. C.; C. B. DAVID, OPA, San Francisco; JOE McDERMOTT, McClintock Trunking Co., Spokane; JAMES MURPHY, Carter Rice & Co. of Oregon, Portland.

Standing (left to right): O. FRENCH, French Paper Co., Los Angeles; RICHARD ABRAMS, West Coast Paper Co., Seattle; J. A. GRUENER, Blake Moffitt & Towne, San Francisco; ARTHUR TOWNE, Blake Moffitt & Towne, San Francisco; E. R. McQUAID, Pacific Coast Paper Co., San Francisco; THOMAS A. LEDDY, Zellerbach Paper Company, San Francisco; H. S. BONESTELL JR., Bonestell & Co., San Francisco; H. L. ZELLERBACH, Zellerbach Paper Company, San Francisco; A. B. ROGERS, Spokane Paper & Stationery Co., Spokane, Wash.; CHARLES H. BECKWITH, Carpenter Paper Co., San Francisco.

Canadian Soldiers Will Work In Woods, Maybe in Pulp Mills, Too

About 1,400 Army Forestry Corps men who have been serving in forests of Scotland will be employed in British Columbia. Farmers in Dominion are reluctant to cut pulpwood because it may endanger their exemptions under National Selective Service. Industry leaders say Canadian wood shortage of 20% of consumption threatens.

● While the logging industry in British Columbia's coastal area enjoys a high priority rating on manpower, no positive action has so far been taken by the Canadian government to designate the pulp and paper industry as "essential."

So long as this condition exists, production cannot be expected to climb substantially throughout the industry. Pulp and paper, as recently as October 29, was listed in "C" category, or one step below logging and lumbering in the eastern provinces, but it was hoped to raise the rating to "B" before long.

The industry faces a different situation in British Columbia because pulp is produced there from logs on the same basis as sawmills, plywood plants and other forest industries obtain their raw material. There is virtually no separate market on the coast for pulpwood as such.

Because of the importance of logging generally on the British Columbia coast the industry enjoys a high rating, considerably higher than pulpwood cutting or even general lumbering operations in the east. The difficulty in British Columbia has not been so much a matter of getting a high priority but of getting the men to which the industry is entitled by that priority.

A higher classification cannot improve the position of the industry on the west coast very much, but the creation of a new source of labor could do so, and several west coast mills have made their application for men from the Canadian Forestry Corps who were returned to Canada recently after serving in the forests of Scotland in cutting logs and operating sawmills. The Canadian government brought these men back on the assumption that now that the shipping situation on the Atlantic had improved immeasurably they could be more effectively employed in Canada than overseas.

Recruits for Logging

● Return of about 2,000 of these forestry corps men has so far been authorized, and about 1,400 will come to British Columbia, where they are expected to be of considerable assistance in boosting production from the forests. There has been a shortage of about 4,000 men in the British Columbia logging industry for more than a year. It is reasonable to suppose that at least some of these men will be allocated to the pulp mills, too. While technically remaining with the army, they will be given "indefinite leave" during their employment in the logging industry and will be paid regular loggers' rates of pay. If they are temporarily without employment they will be paid the army rate of \$1.30 a day.

While many of these men are experienced loggers who formerly worked in the woods of British Columbia, many of them followed nondescript callings before their enlistment with the forestry corps. Some of them were originally with combat units and were transferred to forestry work because they were over age or otherwise unsuited to more active service. However, most of them

had at least a year of wood-cutting experience in the British Isles and they will be a valuable acquisition.

The manpower situation in the pulp and paper industry is much more critical in the eastern provinces, where pulpwood cutting is a seasonal occupation confined principally to the winter months. It had been hoped that the industry would be authorized to employ several thousand German and Italian prisoners of war, but the latest information is that the prisoners will at first be put to work producing cordwood and fuel so their service will be only of indirect aid to the pulpwood industry in the sense that they may replace some men who otherwise would be cutting fuel wood and who will now be available for pulpwood operations.

Faces Wood Shortage

● According to E. Howard Smith, president of the Canadian Pulp and Paper Association, who recently visited British Columbia, the Canadian industry faces a wood shortage of between 1,250,000 and 1,750,000 cords or 20 per cent of its annual consumption, and that is predicated on the assumption that as much wood will be cut this year as was cut last year.

Mr. Smith and other leaders of the industry have advocated employment in the forests of some 20,000 internees or prisoners of war and changes in the National Selective Service regulations through listing of pulpwood cutting as an essential industry. Such revision of the regulations would not only facilitate the employment of men in the west coast pulpwood camps; it would encourage farmers in the eastern provinces to help out during the wood-cutting season.

At present farmers are reluctant to go into the woods because of National Selective Service regulations. They fear that engaging in pulpwood cutting will endanger their status as farmers. Farming and logging are complementary occupations in Quebec. In his slack seasons the farmer can go into the woods and employ time profitably which would otherwise be wasted. In the opinion of the industry the fear in the farmers' minds that their deferment will be jeopardized in woods operations would be eliminated if the cutting of pulpwood were declared an essential industry as has been done in the United States.

"There is a disposition on the part of the public to look on the pulp and paper industry as solely concerned with newsprint," said Mr. Smith. "Actually, in Canada, newsprint consumed a very small proportion of the total woodpulp cut—less than 3 per cent for consumption in Canada, 46 per cent for newsprint consumed in all markets—Canada, the United States, Britain, Australasia, South America and Africa.

"The truth, which we cannot ignore, is that in the war of today, armies fight, eat, are clothed and kept healthy, thanks to a host of products derived from one source—woodpulp."

"In addition, all of the pulp products play their part on the home front; notably in the production of newsprint so that the morale of our people may be sustained through dissemination of accurate news on the progress of the war. The inescapable conclusion we have reached is that if any substantial reduction is to be made in consumption of pulpwood it must be at the expense of our good neighbor and best permanent customer—the United States.

"Canada in war and peace is vitally dependent on exports—chiefly gold, wheat and pulp and paper. In the post-war world the market for wheat and gold is uncertain. On the other hand, the pulp and paper industry alone is in a position immediately after victory to export its products to a market which has the necessary ability to pay for these products, namely, the United States.

"That is why the present situation may have far-reaching repercussions in the post-war world."

Longview Fibre Uses Scrap In Mill Construction Work

"Home-made" force feed chipper and remade truck for hauling wood are products of department which already has shown its ingenuity and skill in making important parts for aircraft carriers . . . Nothing seems too big or complicated for Bill Thompson's crew.

TWO unusual examples of how a mill can make use of waste scrap material, thus helping the war effort and avoiding tangling with priority problems, have come out of the Longview Fibre Company's own up-to-date and well-equipped construction department. One is a home-made force feed chipper and the other almost an entirely remade truck for hauling wood.

It seems like there is nothing too big or too complicated for this department at the Longview, Wash., mill, as witness its construction of catapult rails, oil and water manifolds, valves, columns and anti-aircraft gun mounts, fire control platforms for aircraft carriers of the U. S. Navy.

Under direction of Bill Thompson, superintendent, the construction department has turned out an 84-inch force feed chipper, almost entirely fabricated of scrap plate with a V-belt Tex-rope drive. There were no castings in its construction and the material was taken from the mill scrap pile. This chipper, capable of chipping ten cords an hour, has been installed at the nearby Long-Bell Lumber Company, which furnishes waste wood to the kraft mill.

Longview Fibre owns two other 84-inch pressure feed chippers, of the Swedish type, which are in operation at Long-Bell's lumber mill and the addition of the third one will add to the mill's wood supply and make its position in this day of critical wood shortages more secure.

Truck Lifts 4 Tons

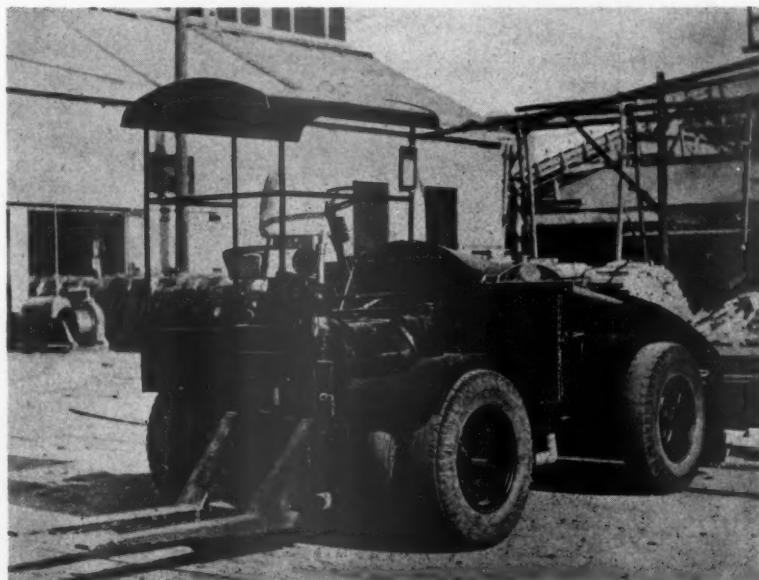
● On this page is shown a picture of the converted Mack truck which has been made into a carrier that will carry four tons of waste saw mill wood used in the manufacture of ground wood.

A hydraulic lift with forks entirely fabricated at the mill were built on the back end of the truck. A Vickery oil pump on hand at the mill was added and the whole transmission was changed. The wheel base of the truck was shortened. Old, used parts around the mill were made over and the entire job was done at the Longview mill.

This truck will lift an entire cooker car of stacked wood weighing four tons and deliver it from the yard to grinders. It takes two truck loads of loose wood from the Long-Bell mill to fill one of the retort cars. Incidentally about 16

women are employed on three shifts around the clock, stacking the wood, a job that had long been considered only suitable for men. Thus they release that many men for the military services or for other essential jobs.

The lift truck does a much more efficient job of delivering wood than was formerly the case, when the cooker cars had to be hauled around the mill yard. Incidentally, the hauling of the cooker cars dug up and otherwise damaged the concrete and macadamized pavement of the yard and this damage is now averted by lifting them.



THIS IS HOW A MACK TRUCK LOOKED AFTER BEING ENTIRELY made over for a wood hauling job in the Longview Fibre Company's own construction department. It is capable of carrying four tons of groundwood. Scrap metal was used in making the hydraulic lift and other parts for the machine which is nicknamed "the Wertheimer tank."

REX RUSSELL, Pulp Mill General Foreman, took this picture at the Longview, Wash., mill.

Education in the Pulp and Paper Industry --A Twenty-Five Year Record

By ROBERT B. WOLF*

An account of the accomplishments of the Joint Textbook Committee of the industry
 Unique movement has had vitalizing effect Investment is paying far more
 substantial dividends than mere monetary ones Leaders aimed to stimulate creative
 power of human mind, instead of relying on mechanical performance.

TWENTY-FIVE years ago at a meeting of the Technical Association of the Pulp and Paper Industry held in Buffalo on September 16, 1918, a plan of reaching significance to the industry in North America was launched. On that date, the Joint Vocational Education Committee of the Pulp and Paper Industry of Canada and the United States was organized and plans for vocational education in this vitally important industry on a continental scale were formulated.

This pioneering step in industrial education on such a large scale was the outgrowth of careful study by technical men and executives in both the United States and Canada.

At that time, we were in the midst of World War I. Our technical men and our far-seeing executives realized the growing necessity to apply scientific knowledge to our own industry as it had been applied to other industries—especially those engaged in the production of war materials. The experiences gained in the prosecution of the first world war brought home to every thinking executive the importance which the scientific approach was assuming in our world economy. They saw that we were becoming specialists and that a broad scientific training, valuable as it had been in the past, was inadequate for the rapid technological development taking place in almost every industry.

Obviously what was needed was to provide means to make available the scientific knowledge that had been accumulated in the pulp and paper field. To do this effectively required its compilation in such readily usable form as to stimulate a desire upon the part of workmen, foremen, and supervisors to acquire it.

Following the industrial revolu-

tion resulting from the invention of the steam engine, the tendency had been to emphasize and rely upon the mechanical performance of industrial operations with comparatively little effort being made to stimulate the creative power of the human mind. As in most all human endeavors, the pendulum which represented the thinking of the industrial leaders had swung too far in the direction of mechanical perfection with far too little regard for the mental perfection of the men who guided the machine. It was a realization of the neglect in the field of technical training and in the stimulation of human interest in natural law that was the motivating spirit behind the formation of the joint vocational education committee.

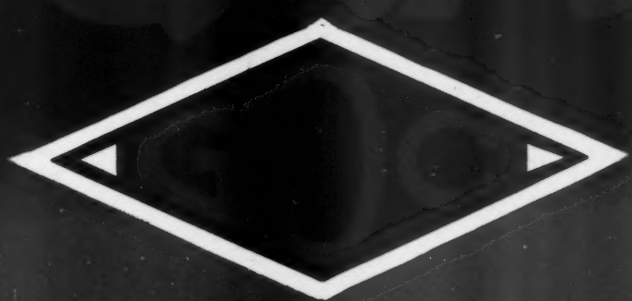
No English Books Existed

● Prior to the formation of the Joint Committee, there had existed both in the Technical Association of the Pulp and Paper Industry and the Technical Section of the Canadian Pulp and Paper Association, separate vocational education committees who had devoted long and arduous study to the problem of vocational education. Each of these committees, therefore, had a considerable background of experience which was made available to the newly formed Joint Committee. The committee representing the Technical Association had personally interviewed many of our foremost mill executives and had obtained assurance of their cooperation in a sound and comprehensive vocational education program. The Technical Section of the Canadian Pulp and Paper Association had a definite promise of support from their parent organization. Of course, neither the individual executives of the mills in the United States nor the Canadian association were ready to offer financial assistance until some definite plan of action had been worked out and an estimate of the size of the task and the financial support necessary had been made.

The new Joint Committee immediately was faced with the necessity of furnishing text books so designed and grouped as to lead the prospective student in a clear and logical manner through the steps of the particular branch of the industry in which he was most interested and at the same time give him the basic scientific foundation upon which the various phases of the industrial operations are based. At that time, there existed in the English language no comprehensive text books dealing with North American practice in the manufacture of pulp and paper. There were textbooks in foreign languages covering many of the technical aspects of pulp and paper manufacture but these texts were written for but a selected few highly trained technical men. The task of the Joint Committee was to prepare authentic textbooks dealing with North American practices which would be available to all of the mill personnel. Such a text had never before been attempted.

Fortunately, George Carruthers, who became chairman of the Joint Vocational Education Committee, had had the benefit of a wide experience in correspondence school education and was able to place this experience at the disposal of the newly formed committee. The committee's first task was to select an editor familiar enough with all branches of the industry to supervise the vast amount of editorial work which this project contemplated. Furthermore, it became evident that an experienced educational director would also be needed. As a result of these deliberations, the Joint Vocational Education Committee elected an executive committee whose function was to carry on the active work involved in the preparation of the textbooks through the hiring of an editor and educational director. It was the further duty of the executive committee to see that sufficient funds were raised to start the project on a sound basis. The personnel of this committee consisted of

*Manager, Pulp Division, Weyerhaeuser Timber Company. The Joint Textbook Committee of the Paper Industry, 342 Madison Ave., New York City, is headed by G. E. Williamson, chairman. R. S. Kellogg is secretary-treasurer. One of the members of the committee is Ray S. Hatch, Research Director, Pulp Division, Weyerhaeuser Timber Company, Longview, Wash.



This rigorous war has made us return to basic principles, to the frugal habits of our forefathers. * Life has once more become a serious business. Rationing has made us exercise strict economies—develop a vigilant sense of values. We are back to times of plain living, where every item must have a utilitarian purpose, be able to meet strenuous demands. ** Only those who think and work in terms of unrelenting quality can hold a place in this all-exacting order of things.

GENERAL DYESTUFF CORPORATION

George Carruthers and T. L. Crossley, representing the Canadian Technical Section and George E. Williamson of the Strathmore Paper Company, C. P. Winslow, director of the Forest Products Laboratory, and R. S. Kellogg, secretary of the News Print Service Bureau, representing the Technical Association of the Pulp and Paper Industry. Shortly after the formation of this committee, C. P. Winslow was obliged to resign because of the many duties involved in the Forest Products Laboratory and R. S. Hatch was appointed as his successor. This committee functioned intact from the time it was organized until January 1, 1942, when Chairman Carruthers resigned because of his desire to retire from active work in the pulp and paper industry. He was succeeded by George E. Williamson as chairman of the Joint Committee and Henry S. Spencer of the Howard Smith Paper Mills, a graduate himself of the Institute of Industrial Arts course on paper-making based upon the published textbooks, was appointed to fill the Canadian vacancy. R. S. Kellogg has acted as secretary-treasurer of the committee since its inception and his zeal and untiring devotion to the affairs of the committee is an outstanding example of personal sacrifice to a worthy cause.

International Fund

● Through the efforts of the Joint Committee and of the many interested members, the Canadian Pulp and Paper Association supplied the sum of \$26,859 through a series of five annual appropriations. In the United States, the funds contributed were raised by individual subscriptions contributed by some 200 individual pulp and paper mills as well as manufacturers of pulp and paper mill equipment. The total sum realized in the United States amounted to \$30,176.

With the combined contributions of the Canadian Pulp and Paper Association, and the mills and equipment manufacturers of the United States totaling about \$57,000, the committee carried through its original program. They selected J. N. Stephenson as editor. Mr. Stephenson has fully justified the wisdom of his selection through the years that followed. Through T. J. Foster, founder of the International Correspondence Schools as consultant on planning procedure, J. J. Clark, a former dean of the International Correspondence School and editor of their textbooks, was chosen as educational advisor both for

the purpose of formulating the courses and supervising preparation of the textbooks.

As soon as the organization details and the machinery necessary for the preparation of the textbooks and courses had been settled upon, a ten-year contract was entered into with the McGraw-Hill Publishing Company for the publication of the textbooks. Under this agreement, the textbook committee was to receive a standard rate of royalties upon all sales, and at the same time there was made available to the committee the broad experience of the McGraw-Hill organization in the publication of scientific and engineering texts. The ten-year agreement originally entered into with McGraw-Hill has been renewed each time upon expiration and the relationships with this company have been on a most cordial and informal basis with no occasion for argument or misunderstanding as to the spirit of the contract originally entered into.

The textbooks finally produced under the able supervision of Editor Stephenson and his associates need little descriptive amplification—they speak for themselves. These books represent contributions from more than a hundred technical specialists in the various fields of pulp and paper as well as equipment manufacturers and they portray the most modern North American practices. The original publication of these books extended over a period of four years with Volumes I and II, covering elementary mathematics, physics and chemistry, appearing in 1921; Volume III in 1922; Volume IV, in 1924; Volume V in 1925.

No industry remains static and the committee foresaw the necessity of constant revision to make the textbooks of current value as improvements and modifications appear. They, therefore, set aside all the royalties received for the purpose of periodical revision. It has not been necessary to revise Volumes I and II which deal with elementary mathematics, physics, and chemistry. Volumes III, IV and V, however, giving the details of various pulp and paper mill practices have required two revisions so far. The first revision of Volume III was completed in March, 1927, that of Volume IV in September, 1928, and Volume V in March, 1929. The second revision of these three volumes occurred for Volume III in February, 1937, Volume IV in February, 1938, and Volume V in January, 1939. In all cases, the

original text and the revisions were submitted to specialists in the different fields covered and critically examined for errors or improvements before they were finally printed and placed on sale.

Courses Arranged

● With the preparation of the textbooks well under way, the committee began to consider ways and means of carrying on an educational program throughout the industry. In Canada the Institute of Industrial Arts, Inc., under the Technical Schools Act of the Province of Quebec was founded at Sainte Anne de Bellevue in the province of Quebec and in this institute correspondence courses were organized.

In the United States the Massachusetts Division of University Extension was sufficiently interested in the project to arrange for handling the complete courses either in class or by correspondence. This course was open to all residents of Massachusetts and was available to residents outside of Massachusetts for a slightly increased cost. International Correspondence Schools were also interested and arranged to give complete courses in the manufacture of pulp, the manufacture of paper, or the manufacture of pulp and paper. The Wisconsin State Board of Education also made arrangements for giving correspondence courses based on the textbooks. In addition to correspondence courses, the University of Maine has used the textbooks in their pulp and paper school. The New York State College of Forestry located at Syracuse in conjunction with Syracuse University also have used the textbooks in their pulp and paper course.

Not long after the publication of the textbooks, it became apparent that in the province of Quebec, where French is widely used, it would be necessary to provide a French translation. This was undertaken by the Industrial and Educational Publishing Company in Canada and the cost of the copyright privileges was defrayed by the provincial government. Part of the French text was prepared in Canada and part was prepared by the faculty of the pulp and paper school in Grenoble, France. It was necessary to alter some of the French text through insertion of Patois terms used in the Canadian mills. This French text has been used both at Grenoble, France, and at the Technical and Paper School at Three Rivers, Quebec.

Through the twenty-five year pe-

riod in which the Joint Committee has been functioning, the interest in the educational program has continued. Some eighteen hundred students have enrolled in the Institute of Industrial Arts course and two hundred have graduated. The State University extension courses which have been mentioned also have found continuing interest on the part of mill employees. It is interesting to note that those who have enrolled for these courses include men varying in age from seventeen to over sixty. The educational background of these men ranges all the way from those who have not completed common school to those who are university graduates.

To aid the educational program a number of mills have established local schools at their mills, some for the purpose of giving the entire course and some for giving unit courses bearing upon their particular interest. Some of these schools have suspended, others are continuing with marked success. Among the most outstanding of the local schools operating at a mill site is that conducted by the Crown-Willamette Paper Company at Camas, Wash. This school has been so successful in its educational program that the work of the students taking the pulp and paper course is given University credit both in the State of Washington and in the State of Oregon.

Record of Sales

● A variety of means have been used to pay for the instruction received by different correspondence and local schools. In some cases the responsibility is entirely that of the individual taking the course. In other cases, the individual advances all, or part, of the cost of the course and this money is refunded by the mill upon completion of the course. The method of handling the cost of the courses is the responsibility of the individual mills. In many cases where technical men have taken the course, they have obtained enough benefit from the instruction to willingly defray the entire cost themselves.

Probably one of the most significant indications of the continued interest in the educational program of the Pulp and Paper industry is a record of the sale of the textbooks. At the end of June, 1943, a total of 36,113 volumes had been sold. In the elementary courses covered by Volumes I and II, 5,062 copies of Volume I have been sold and 4,260 copies of Volume II. A total of 10,899 copies of Volume III have



ROBERT B. WOLF (left), Manager, and RAY S. HATCH (right), Research Director, Pulp Division, Weyerhaeuser Timber Company. Mr. Wolf is author of the accompanying article and Mr. Hatch is the far western member of the Joint Textbook Committee of the Paper Industry.



been sold. Volume III is the one which comprises the various pulping processes. Volumes IV and V deal with all phases of the manufacture of paper; 8,517 copies of Volume IV have been sold and 7,375 copies of Volume V.

In spite of the fact that we now are engaged in a war on a far greater scale than the one in progress when this project was initiated, it is interesting to note that in the first half of 1943 a total of 375 volumes of the textbooks were sold. These are divided as follows:

Thirty-nine copies Volume I; 38 copies Volume II; 111 copies Volume III; 84 copies Volume IV; 103 copies Volume V.

Undoubtedly, interest in the educational program is still active even though we are in the midst of a global war. This investment is paying far more "substantial dividends" than mere monetary ones. The firm foundation of factual wealth upon which it is built will enable it to render an ever increasing service to anyone who will take advantage of the opportunities it offers.

Those of us who have watched this unique industrial educational movement from its inception know the vitalizing effect it has had upon our industry. As its value becomes more apparent it will continue to grow for those who receive from it will give to it in even greater measure. Ideas multiply at an accelerating rate as the periodic revisions of the textbooks testify and the effects of each revision radiates out into

our industry, increasing its effectiveness and the effectiveness of all who are willing to dig into this rich mine of information that our industry has put at their disposal.

W. N. Kelly Heads Successful Chest Drive

● With pulp and paper men, lumbermen, representatives of labor and industry heading the drive, unexpected success has been reported from the Longview-Kelso area in attempts to reach a quota of \$55,325.45 for the Community War Chest. The main subscription drive occurred between October 25 and October 30, except for people who could not be seen during the period. As of November 6, a total of \$54,145.20 had been collected, and those in charge were expecting a total of better than \$60,000.

W. N. Kelly, manager of Pulp Mill No. 1, of the Weyerhaeuser Timber Company, headed the organization as president, with Hal Powell, resident manager of the Standard Oil Company of California, as publicity chairman. Other directors were: R. S. Wertheimer, vice president and general manager of Longview Fibre Company; I. G. Reinke of Reynolds Metal Company; Mrs. H. Weiss of Crescent Shingle Company; James Baker, of Baker Lumber Company; F. M. Piper, Longview Fibre Company; Steve Siebers, Longview Fibre Company; Mrs. G. Rivers, AFL, and Lucian Crawford, AFL. The last four named were labor representatives.

Schille On Coast

William H. Schille, president of the Biddle Purchasing Co. of New York, was a recent Pacific Coast visitor to the paper trade.

West Coast Visitor

S. C. Knode, vice-president of the Albermarle Paper Manufacturing Co., Richmond, Va., recently made his annual visit to the Pacific Coast.

Pacific Coast Mill Employees Buy Bonds--AND HOW!

More than Million Dollars Invested by Employees Out of Their Paychecks In Month of September / / / Unusual Record Established at Hawley Pulp & Paper Company / / / Reports on Incentives and Methods Used in Campaigns.

(It is believed that some of the experiences of mills in the recent war bond campaigns may prove helpful to other mills in the campaigns to come. For this reason, some of the methods and incentives used are detailed in the following article).

THE pulp and paper industry of the Pacific Coast went to town in the Third War Loan campaign of September in a big way.

IN THAT ONE MONTH ALONE, PROBABLY OVER ONE MILLION DOLLARS WAS INVESTED IN BONDS BY THE EMPLOYEES IN ALL MILLS OF THE THREE COAST STATES.

This figure is, necessarily, just an estimate, but it's a pretty safe one, in view of the fact that sixteen mills reported to PACIFIC PULP & PAPER INDUSTRY that their aggregate of more than 10,000 employees invested nearly half a million dollars in bonds. These represent more than one-third of the mills on the coast. Although they include most of the large ones, it is probable that their figure of \$484,381 invested in bonds would be more than doubled by employees of the other mills.

This was the first time since the war began that the PACIFIC PULP & PAPER INDUSTRY attempted to make a combined report on the entire coast industry. A questionnaire was sent out rather belatedly and we will concede the failure of some mills to reply was partly our fault because greater clarity and brevity in questions might have been achieved. There were eighteen responses in all (out of a total of 44 mills) but two were in percentage figures only. More than half of the Washington and Oregon mills sent in replies, but those in California did not do so well.

FROM 16 MILLS WITH 10,367 EMPLOYEES, IT WAS REVEALED THAT EACH EMPLOYEE INVESTED AN AVERAGE OF \$46 EACH IN BONDS IN SEPTEMBER. THIS INCLUDED AN AVERAGE INVESTMENT OF \$31 EACH OVER AND ABOVE THEIR REGULAR MONTHLY PAYROLL DEDUCTION FOR BOND PURCHASES, WHICH IN MOST CASES AVERAGED 10 PER CENT OR MORE OF SALARY.

Hawley Sets a Remarkable Record

● There can be no embarrassment for any other mill in singling out for praise the truly phenomenal record of the Hawley Pulp & Paper Company of Oregon City, Ore.

IN THIS MILL, ABOUT 600 EMPLOYEES MADE SEPTEMBER BOND INVESTMENTS AVERAGING ABOUT \$118 EACH. THIS WAS AN AVERAGE OF MORE THAN \$90 EACH OVER AND ABOVE REGULAR PAYROLL CONTRIBUTIONS.

The chairman who led in this remarkable mill campaign was Fred Rodgers, millwright in the Oregon City sawmill. The mill raised a total of \$71,218.81, including an investment of \$56,631.31 over regular deductions. That's a challenging figure to put up against that of any industrial concern anywhere anytime.

Proud of this record were John H. Smith, president and general manager, and Carl E. Braun, vice presi-

dent and mill manager, but they gave full credit for success of the campaign to the employees.

Camas Hits Jack Pot

● The Camas, Wash., mill of the Crown Zellerbach corp., is so large—with about 1,900 on its payroll—that it quite naturally could be expected to find difficulty in keeping up a high individual bond-buying average in comparison with smaller mills. But just the opposite was true in September. It ranked fifth in per capita investment among the 16 mills reporting total amounts, unusually high for such a big mill, but the really interesting figure at Camas was its grand total of \$125,500 worth of bonds purchased (maturity value) in the month of September. This was well over the \$100,000 quota set for the mill.

J. F. Robertson, safety supervisor, was the campaign manager. A bulletin board table at the entrance to the mill showed progress of each department and percentage of employees participating during the campaign.

A letter from J. E. Hanny, resident manager, commended all employees after the campaign and was posted on all bulletin boards. He observed that the campaign would be "a source of satisfaction to over 600 boys whose names are on our honor roll."

Showing unusually high average individual investments in bonds (among those reporting to this magazine) were the Everett, Wash., mill of the Pulp Division, Weyerhaeuser Timber Company, the West Linn, Ore., mill of Crown Zellerbach Corp., and the Stockton, Calif., division of Fibreboard products Inc. In these three mills, each employee in September alone invested an average of from \$70 to \$90 in bonds.

The chairman at Weyerhaeuser's Everett mill was Arthur F. Weleber, lead electrician, and the company put up \$100, \$50 and \$25 bonds as prizes. These were awarded at a final bond rally at which there were various speakers, including Seaman Izzy of the U. S. Navy, who told of his 83 days afloat on a life raft.

Irving T. Rau, secretary-treasurer of the St. Helens Pulp & Paper Company, St. Helens, Ore., reports: "During the Third War Loan Drive many of our employees purchased bonds in the entire amount of their September earnings and are now members of the 'I Dood It' Club. Our payroll deductions were 25 per cent and bonds purchased during drive amounted to over 30 per cent (considering extra money brought in by the employees)."

Well above average individual buying records also were recorded at Longview Fibre Company, Longview, Wash.; Soundview Pulp Company, Everett; the Coos Bay, Ore., mill of Coos Bay Pulp Corporation; Rayonier Incorporated at Port Angeles, Wash.; the Sumner, Wash., division of Fibreboard Products Inc., and Spaulding Pulp & Paper Company, Newberg, Ore.

Incentives Used in Campaigns

● In the campaign at Soundview a large thermometer type sign was posted at the mill gate and the daily sales were posted each evening. Toward the end of the drive, interest was quite evident, it was reported. Sam A. Salmonson, superintendent, and R. F. Minnehan,

instrument man, were the joint chairmen of this campaign.

H. P. Hoopes, superintendent of inspection and specifications, and L. Harris, secretary of the labor-management committee, who led the campaign at the big plant of The Paraffine Companies, Inc., Emeryville, Calif., reported they were able to make their campaign "very competitive" by posting daily departmental standings and rankings. This was done in various ways at other mills.

At Longview Fibre Company, the campaign was in the hands of a joint management-union committee.

The campaign manager at Coos Bay, Ore., division of Coos Bay Pulp Corporation, was Leslie L. Sprogis, machinist and president of local 232 of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

General chairman at Puget Sound Pulp & Timber Company was Carl Paulsen, Pacific Coast secretary-treasurer of the Pulp, Sulphite and Paper Mill Workers. E. O. Ericsson, technical director, and Gus Okerlund, personnel manager, were leaders in the organization and the departments organized competing teams with a captain for each team.

At the Port Townsend, Wash., division of Crown Zellerbach Corporation, Maxwell Loomis, safety supervisor, and Marvin Morris, president of local 304, IP of PM, were co-chairmen of the drive. Here the city and county exceeded their quotas, helped materially by mill employes, but no record was obtained of contributions by mill employes outside the mill. Buying of bonds through fraternal organizations and outside the mill were reported by other mills and it is known that if these sales could be included in mill totals, the latter would be much higher.

The Port Angeles, Wash., division of Rayonier Incorporated, where H. E. Sherman, assistant personnel supervisor, was chairman, was able to obtain some record of outside sales.

THIRD WAR LOAN DRIVE RECORDS OF 16 PACIFIC COAST MILLS

(Names of mills are not listed to avoid any comparisons)

Total No. Employees	Total Amount Raised in Sept.	Total Amt. Raised Above Regular Monthly Deductions	Regular Monthly Deductions In Sept.
1,900	\$120,000.00	\$93,750.00	\$26,250.00
About 1,500	22,509.64	7,879.00	14,630.64
Over 1,000	?	54,000.00	(10.6%)
	33,000.00	?	(10%)
	55,150.25	37,642.75	17,507.50
	19,066.25	4,181.25	14,885.00
Between 500 and 1,000 employees	47,081.25	?	(10%)
	71,218.81	56,631.31	14,587.50
	22,372.22	9,695.98	12,676.24
	29,663.21	21,834.39	7,828.82
430	9,229.18	3,500.00	5,729.18
302	7,431.96	3,356.25	4,075.71
275	23,623.42	16,823.42	6,557.83
187	10,000.00	6,750.00	3,250.00
151	7,888.00	4,957.00	2,931.00
115	6,147.00	3,885.00	2,262.00
10,367	\$484,381.19	\$324,850.35	\$133,171.42

K. W. Henlein, resident manager at the Oregon Pulp & Paper Company, Salem, Ore., contributed his personal services and gave much of his own time to serving as chairman of the campaign at that mill.

At the Everett Pulp & Paper Company, Everett, Wash., the joint leaders of the campaign were Paul French Peterson, secretary to the president, and Fleming G. Sevon, millwright.

Russell Roberts, finishing room foreman, headed the campaign committee of seven at Pacific Coast Paper Mills, Bellingham, Wash.

A. J. Erickson, the office manager, was the chairman at the Sumner, Wash., division of Fibreboard Products Inc.

Crown Willamette Paper School Reopens With Increased Enrollment

• The only school of its type in the world—the Crown Willamette Paper School of Camas, Wash.—opened this year on October 19 for its eleventh year with an enrollment of 80 students, a 10 per cent increase over last year despite war conditions, according to C. A. Anderson, registrar.

Transportation has been arranged for those who wish to take the course from West Linn, Ore., site of another Crown Zellerbach mill. Enrollment is confined to employes of the corporation. Acquired credits are acceptable both at University of Washington and at Oregon State College for those who may wish to complete an academic course. Tuition and text books are free.

The school gives instruction over a four year period, covering the minutiae of paper manufacture from its primitive inception in China to its present status as one of the most highly organized chemical engineering industries. Beyond the historical background, the course actually starts with the tree in the woods, and follows it through the various phases of reduction to pulp, and manufacture into various products.

Executive supervision lies with a Board of Regents which comprises three members: Albert Bankus, vice president of Crown Zellerbach Corporation, San Francisco; J. E. Hanny, resident manager,



A. G. NATWICK, Assistant Resident Manager, Camas, Wash., mill of Crown Zellerbach Corporation, who got out the school bell again for another term of the Crown Willamette Paper School. He is the Dean.

Camas mill, and C. E. Bruner, resident manager, West Linn mill.

The complete staff of the Paper School is as follows:

A. G. Natwick, dean; G. H. Galloway, principal and professor of first and second year classes; C. A. Enghouse of West Linn, vice principal; C. A. Anderson, registrar; W. C. Jacoby, professor, first year; George Bailey, professor, third year; O. T. Defieux, professor, fourth year; Reginald Haight, assistant professor, third year, and Gus Austensen, H. H. Junge, Paul V. Millard and F. R. Sievers, associate professors.

The instruction this year is extended to 20 weeks, instead of 19.

Student registration shows 26 women to constitute a majority of the 50 registrants in the first year course. The second year shows three of the 16 students to be women.

Speakers listed to address classes include: Raymond Hatch, research director, Pulp Division, Weyerhaeuser Timber Co.; W. N. Kelly, manager, Longview mill of the Weyerhaeuser Pulp Division; Prof. Bror L. Grondal, University of Washington; H. H. Richmond, chief engineer, Electric Steel Foundry, Portland, Ore.; R. E. Chase, Tacoma, Wash.; P. R. Hines, consulting engineer, Portland, and Otto Hartwig, general safety supervisor, Crown-Zellerbach Corporation and Rayonier Incorporated.

Goodwill Is **NOT** Rationed



A Report to the Forest Industries on the New "TOOLS" Available for Making Friends . . . and a Suggestion That YOU USE THEM



Twenty months ago AMERICAN FOREST PRODUCTS INDUSTRIES was given a task new to our industry. . . .

The job was to find the means of dispelling prejudice and misunderstanding about the forests, forest enterprise, and forest products. This undertaking is of great personal importance to everyone who works with wood . . . whether lumber, plywood, pulp and paper, shingles or wood plastics . . . whether stockholder, manufacturer, worker, distributor, or salesman.

Never before had such a substantial proportion of the forest industries banded together in a cause of such basic interest to the *one million workers who depend upon wood for their living.*

The most common-sense type of post-war planning for our industry may be the cementing of old friendships and the building of new ones through the simple process of truthfully explaining ourselves and our operation of America's only renewable natural resource.

We are getting on with the job . . . but it is now YOUR turn to help.

For months a staff of writers, radio, and motion picture people has been telling the fascinating story of our industry . . . but it will take a long time to reach one hundred and thirty million people. You will be pleasantly surprised to observe how eagerly the men and women in your own community will welcome goodwill information and how quickly understanding will improve.

Many hands hasten any job. Your AFPI staff can never duplicate the results which can be achieved by an explanation of forest facts in thousands of communities *by the citizens* of those communities. . . .

You are one of them . . . Will you help?

Let's All Get on the **TEAM!**

Making friends is often a job we must do ourselves, each in his own community. Understanding cannot be hired, borrowed, or bought over the counter. And yet, goodwill is *your* best bulwark against the future.

For our industry it consists of such things as freeing the public mind of groundless fears of a "timber famine" . . . of explaining how much wood grows in America each year . . . of informing the six out of ten people who believe wood outmoded that, actually, it is the most versatile of materials, sprouting exciting new uses like a June rose.

You'll need factual material to explain the "New Age of Wood" to your community. Your next step is to learn about the booklets, posters, charts, maps, motion pictures, speeches, newspaper stories, features, and advertising which are ready for you, *without cost*. Send for the little booklet illustrated below.

Will You . . .

... help the children in your town understand forest facts by asking your schools to use AFPI school books, posters and map?

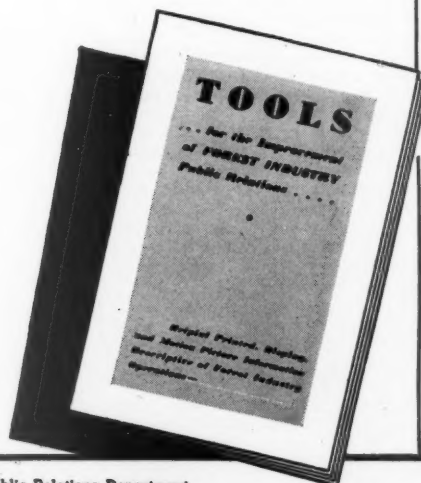
... bring to your people the dramatic story of "Wood Goes to War", by urging your theatre to show this Technicolor picture by James A. Fitzpatrick?

... arrange to have your club enjoy the free movie, "Trees for Tomorrow."

... read, and pass on to others, interesting forest information in the "Quiz Book" on American forests . . . and use "Speak Up", valuable aid to speakers on forest industries?

... tell our story in your local newspaper by means of ready-to-use advertising, available to you without cost?

These and many other new implements of understanding are all illustrated in the catalog, "TOOLS". Send for it. Use the coupon.



Public Relations Department
American Forest Products Industries, Inc.
1319 - 18th St., N. W., Washington 6, D. C.

Please send your booklet *Tools for the Improvement of Forest Industry Public Relations* so that I may make the good will team and get the tools to win more friends for my industry.

Individual.....
Company.....
Street.....
City..... State.....

Some Background on Washington Battle For Newsprint; Bulkley, Dunton Man Has Plan

● In view of the charges heard on many sides that a "free press" is being threatened in the United States because of attempts to cut down the size of newspapers on a percentage basis, an open letter composed by S. E. Thomason, publisher of the Chicago Times and the Tampa Tribune is interesting.

Here are some of the statements he makes:

Newspapers in just ten cities received 73.3 per cent of extra appeal tonnage granted for the entire country in the first quarter of 1943 and 76.7 per cent in the second quarter.

An Athens, Ohio, publisher complained he was "being forced to cut his little 14-page Sunday paper to 12 pages while one big city paper wastes more newsprint in one issue than we would use for 52 Sunday papers."

Forty-one publishers have been using 56 per cent of the newsprint consumed by America.

Thirty-six of these publishers have Sunday papers with a total circulation of 8,003,455 as compared with 2,236,923 for their weekday newspapers. The major part of this excess Sunday circulation is for predate Sunday papers printed six days before its publication date.

Newspapers in 13 of the largest cities of the nation averaged 85 pages for Sunday editions and 28 pages week-day for the first seven months of this year. The New York Sunday Times averaged 150 pages, the New York Herald-Tribune 125, the Philadelphia Inquirer 114 and the Chicago Tribune 106.

(Meanwhile, in London, newspapers each with several million readers—larger circulations than that of any United States newspaper—are publishing four-page papers).

The percentage reduction does not differentiate between the small paper and those that secured inflated circulations before 1941 by extravagant promotional and entertainment features.

Several hundred additional tons were allowed each of several individual papers to cover magazine sections added to those newspapers in 1941 or even 1942.

The above resume only hits a few of the high spots in the letter by Mr. Thomason, who is a member of the newspaper industry's WPB advisory committee.

New Cut Proposed

● A new cut of 16 per cent in newsprint consumption in November—as great as the three previous cuts attempted this year but not universally achieved—was proposed to newspaper publishers by H. M. Bitner, chief of the WPB Printing and Publishing Division on October 20. He suggested this as an alternative to cutting into reserves which would drastically lower inventories.

Rex W. Hovey, director of the Paper Division, announced a week later that an advisory committee of manufacturers would be set up to consider the use of lower weight paper for newspapers.

Production Figures

● The News Print Service Bureau, 342 Madison Avenue, New York City, announced last month that newsprint pro-

duction in Canada during September amounted to 251,827 tons and shipments to 244,593 tons. Production in the United States was 64,328 tons and shipments 63,315 tons. During September, 22,606 tons of newsprint were made in Newfoundland. North American production for the month amounted to 338,761 tons. Total production in September 1942 was 358,893 tons.

Canadian mills produced 192,777 tons less in the first nine months of 1943 than in the first nine months of 1942, which was a decrease of eight per cent. The output in the United States was 105,968 tons or 14.7 per cent less than in the first nine months of 1942, in Newfoundland production was 53,434 tons or 24.8 per cent less, making a total decrease of 352,179 tons, or 10.5 per cent less than in the first nine months of 1942.

Bulkley, Dunton Expert Suggests Reprocessing

● The threat to cut newsprint allocations could be averted and, newsprint supplies could be made more than adequate if provisions had been made for the reprocessing of old newspapers, according to P. M. Loddengaard, in charge of the technical department of Bulkley, Dunton Pulp Company, New York.

Mr. Loddengaard, who recently testified before the House Boren Committee investigating newsprint supplies, believes that at least one million tons of newsprint could be de-inked and reused for printing newspapers out of the approximately four million tons of newsprint consumed in the United States per year. Seventy-five per cent of our newsprint is imported from Canada.

"Despite the fact that several practical methods exist for the de-inking and reprocessing of newsprint, we are now reprocessing old newspapers mainly for the manufacture of paperboard," Mr. Loddengaard said. "The process identified with James H. R. Cromwell, former United States Minister to Canada, is perhaps best known for the de-inking of newspapers and extracting wax, asphalt and other impregnating materials from used paper. This process is now being put to practical use by paper mills in Virginia and New York," said Mr. Loddengaard.

Mr. Loddengaard is convinced that by improving our methods of waste paper collection and by equipping some mills with de-inking machinery—the installation of which would be comparatively simple—the problem of newsprint shortage could be solved. Reconverting newsprint would not interfere with the production of other kinds of paper because available waste paper would be sufficient to cover all essential needs for paperboard and newsprint if the paper salvage campaign was conducted in an efficient manner, according to Mr. Loddengaard.

15% Magazine Cut

● A further 15 per cent cut in paper tonnage for the magazine publishing industry, effective January 1 next, has been recommended to the War Produc-

tion Board by the Magazine and Periodical Industry Advisory Committee.

If the curtailment is ordered by the WPB magazines will be using 25 per cent less than in 1942, a previous cut of 10 per cent already having been ordered.

United States Exports Of Newsprint

● During the sometimes heated controversies being waged in Washington over newsprint supplies, congressmen forced the WPB to loosen up with some interesting export figures. The list of United States exports of newsprint paper, January-June, 1943, by country was later released. It follows in full with quantity in pounds:

Iceland	231,765
Newfoundland and Labrador	2,773
Canada	74,851
Mexico	13,596,700
Guatemala	319,136
British Honduras	28,127
El Salvador	1,042,596
Honduras	185,329
Nicaragua	448,766
Costa Rica	708,103
Panama, Republic of	432,648
Bermuda	60,959
Bahamas	55,073
Cuba	3,704,855
Haiti	106,127
Dominican Republic	405,202
Windward Island	17,563
Curacao (N.W.I.)	25,432
Colombia	2,208,693
Venezuela	486,711
British Guiana	16,000
Surinam—Dutch Guiana	126,003
Ecuador	782,233
Peru	1,776,168
Bolivia	333,585
Chile	679,851
Brazil	57,654
Paraguay	227,088
Uruguay	554,439
Argentina	1,201,646
Portugal	369,456
Iraq	33,024
Palestine and Transjordan	20,604
British India and Dependencies	1,383,209
Ceylon	222,146
Australia	40,938
New Zealand	2,200
French Oceania	9,950
French Morocco	1,439,051
Algeria	749,810
Egypt	1,351,667
Cameroon	14,890
Other French Africa	241,420
Liberia	2,132
Belgian Congo	36,960
Union of South Africa	22,072
Southern Rhodesia	41,938
Portuguese Gn. and Angola	61,513

Total, All Countries 35,939,056

It was brought out that the annual average newsprint exports 1937-9 were only 10,769 long tons.

Defends Canadian Newsprint Production

● Canada will ship this year nearly 350,000 tons of newsprint to the United States in excess of what was shipped in 1939, or 16% over shipments in that year, says Paul Kellogg, acting president of the Newsprint Association of Canada, in an open letter to Linwood Noyes, president of the American Newspaper Publishers Association.

These shipments also will be 231,000 tons, or 10% over the average amount shipped in the five pre-war years, he added, in answering criticisms by some American publishers to the effect that Canadian newsprint manufacturers have failed in their obligations to their customers on the other side of the line. The tables on newsprint shipments and supplies shown on this page were sent by Mr. Kellogg to Mr. Noyes.

In pointing out that this record is being accomplished in Canada's fourth year of the war, the Association head draws attention to the fact that United States mills in 1943 will ship 146,000 tons, or 15% less than in 1939, and 97,000 tons, or 11% less than the average in the five-year pre-war period.

Newfoundland, on the other hand, he says, again will ship a considerable excess over 1939 and pre-war, but tonnage is comparatively small because of limited capacity.

In his letter to Mr. Noyes, Mr. Kellogg commented also on pulp shipments:

"In addition to this volume of newsprint, Canada has been supporting the pulp and paper industry of the United States. I understand that Canadian shipments of pulp to United States mills in the year 1943 will be close to 1,300,000 tons or more than double the tonnage delivered pre-war. Exports of pulpwood for manufacture into pulp and paper in the United States in both 1942 and 1943 will also substantially exceed exports in 1939 and in the period 1935-1939."

Statistics on British Newsprint Consumption

● Annual newsprint consumption per capita in Britain has been reduced to 12 pounds, according to World Press News, a trade publication, discussing post-war prospects for British newspapers.

This contrasts with consumption in the United States of 57 pounds and in Canada of 32 pounds. At present Britain is using 19 per cent of her prewar newsprint consumption compared with the United States' 106 per cent.

To safeguard the future at the present minimum, British Newsprint Supply Company, which provides newsprint to United Kingdom newspapers, purchased from Canada 248,000 tons of newsprint for shipment—half in 1944 and half in 1945. That, with British local supplies, would merely maintain the present status.

British dailies now are of four pages while Sunday papers run from six to eight pages on alternate week-ends.

Collier's Second Son

● Sidney Collier, sulphite foreman for the Puget Sound Pulp and Timber Company, announces the birth of a second son, James Mitchell Collier, on Halloween, at St. Luke's Hospital, in Bellingham. The little fellow, who weighed more than nine pounds at birth, is welcomed by his brother, Edwin, two years old. Mother and baby are both well, Sid reports.

CANADIAN NEWSPRINT SHIPMENTS INTO U. S. MARKET

(In thousands of tons)

	*1943	1942	1939	Average 1935-1939
From Canada	2,542	2,811	2,194	2,311
From Newfoundland	144	196	87	100
From United States	796	933	942	893
From Overseas	0	0	294	257

*Shipments for first nine months extended to twelve months.

U. S. NEWSPRINT SUPPLY IN 1942

	Tons Received in 1942	1942 Receipts
	Over or Under 1939	As a percentage of: 1939 5 year pre-war
From Canada	617,000 over	134% 122%
From Newfoundland	109,000 over	224% 195%
From U. S.	9,000 under	99% 104%
From Overseas	294,000 under	0% 0%

U. S. NEWSPRINT SUPPLY IN 1943

	Tons Received in 1942	1943 Receipts
	Over or Under 1939	As a percentage of: 1939 5 year pre-war
From Canada	348,000 over	116% 110%
From Newfoundland	57,000 over	165% 144%
From U. S.	146,000 under	85% 89%
From Overseas	294,000 under	0% 0%

Dr. Hibbert Returns to Coast; Expresses Views on Industry Problems

● Dr. Harold Hibbert, who retired on September 1 as E. B. Eddy professor of industrial and cellulose chemistry at McGill University, Montreal, Canada, made about a ten-day visit to western Washington State and British Columbia in the latter part of October and early November.

At McGill he directed the important research activities conducted there under the sponsorship of the Canadian Pulp & Paper industry organization which have made him an outstanding international authority on wood cellulose and lignin.

Before leaving Seattle to return to his Montreal home, Dr. Hibbert told a representative of PACIFIC PULP & PAPER INDUSTRY that he considered the proper, economical use of sulphite waste liquor as the biggest problem now facing the entire industry. Some of the plans now being forwarded for use of this waste liquor, he said, were not what he considered the best possible utilization.

He expressed great interest in the reforestation and scientific management of forest resources being carried out on the west coast, with large pulp and paper industries taking leadership in these enterprises.

Dr. Hibbert said that due to housing shortages on the Pacific Coast, he has found it impossible to come to a definite decision regarding his possible selection of a permanent residence on this coast. During a visit here last May he had indicated that he and Mrs. Hibbert may eventually move to the west coast.

He hoped to return here on another trip connected with industrial research activities in February, 1944.

"There should be a really important expansion of pulp trade on the Pacific Coast after the war," he said. "Shortages of manpower are only temporary.

"Out here on the Pacific Coast is where the wood is," he went on. "And where the wood is, there will be the great industries of the future. Meanwhile, we must do everything we can to attain a fuller use of the tree for economical reasons."

Dr. Hibbert visited Dr. Robert H.

Clark, chairman of the department of chemistry, University of British Columbia, in Vancouver, B. C.

Foley, McDonald And Smith Meet Editors

● Three representatives of leading newsprint producers of the Pacific Coast and British Columbia explained the details and background of the newsprint shortage to members of the Pacific Northwest Newspaper Association in Portland, Ore., October 28.

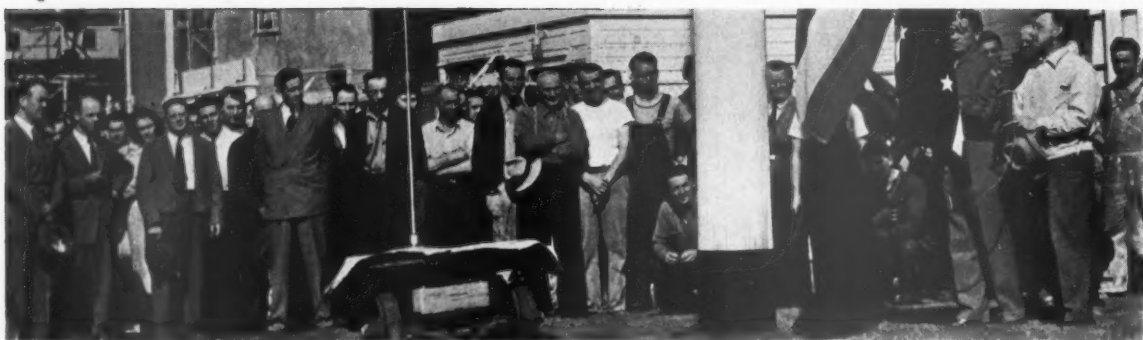
Present to discuss problems caused by the acute newsprint shortage were Harold S. Foley, president of the Powell River Company of British Columbia; R. A. McDonald, executive vice president of Crown Zellerbach Corporation, San Francisco, and John H. Smith, president of the Hawley Paper & Pulp Company of Oregon City, Ore., who told publishers that the situation is serious and the outlook none too bright.



LES MULLINS, Board Mill Superintendent, Stockton (Calif.) Division, Fibre-board Products Inc., who recently celebrated his 30th wedding anniversary.

Heads Vancouver Bureau

J. W. Nunn, of Vancouver Pacific Paper Company, has been appointed chairman of the advertising and sales bureau of the Vancouver, B. C., Board of Trade.



PUGET SOUND PULP & TIMBER CO., BELLINGHAM, WASH., WAS AWARDED THE TREASURY T FLAG at a ceremony in front of executive offices of the mill on Sept. 24. This climaxed a five-day campaign which resulted in 100 per cent employee participation in payroll deductions of more than \$4,000 for 302 employees. Over and above this, the employees raised \$3,356 for the Third War Loan. In addition to this, the company subscribed for \$400,000 in bonds.

At the ceremony, LAWSON P. TURCOTTE, Executive Vice President, thanked employees for their cooperation. CARL PAULSEN (second from extreme right in the above group), General Chairman of the campaign and Pacific Coast Secretary-Treasurer of the International Brotherhood of Pulp, Sulphite & Paper Mill Workers, AFL, introduced EARL D. GRIFFIN (extreme left in above picture), the County Campaign Chairman, Assisting Mr. PAULSEN in the mill campaign were GUS OKERLUND, Personnel Manager, and ERIC O. ERICSSON, Technical Director. Group leaders were GLEN MacDONALD, Sulphite Mill; BERT HANSEN, Cut-up Plant; THORNTON BEHME, Machine Room, and PETER ANDERSON, Maintenance.

FROM LEFT TO RIGHT IN THE FRONT ROW of above picture and also, in some cases, others who can be clearly identified, are: Mr. GRIFFITH; ERIK EKHOLM, General Superintendent; OSCAR JOHNSON, Cut-up Plant; GORDON BONHAM, Instrument Man; VICTOR C. HANER, Plant Engineer; FRANK BROWN, Master Mechanic; HERSCHEL MARTIN, Chiptender; ELMER PETERSON, Shipping Department; RAY MEYERS, Filterman; GLEN MacDONALD, Acid Maker; BARNEY GALLAGHER, Screen Repairman; SIDNEY COLLIER, Sulphite Foreman (between the flag and pole); Corporal AL SCHACHTSCHNEIDER, U. S. Army, a former mill employee; Mr. PAULSEN, and WALTER GROVES, painter.

Charcoal Gas For Trucks

● Operation of motor trucks through the use of "charco" gas instead of gasoline is now being carried out in British Columbia.

A four-ton Federal truck owned by David Spencer, Ltd., Vancouver department store, has been handling up to six ton loads on short hauls with long stops, drawing its fuel from a charcoal gas producer unit manufactured by Hamilton Bridge (Western), Ltd., Vancouver.

The charcoal used in the gas producer is alder, birch, beech or oak. The apparatus was designed by D. S. Bow of Vancouver. He has been consulted by the United States military authorities.

Pulp Mill Develops Gas for Vehicles

● Colonel Robert R. McCormick; publisher of the Chicago Tribune, owner of the Ontario Paper Company, announced in New York recently that engineers at his company's pulp mill in Canada had developed a converter engine capable of producing a gas for powering commercial vehicles without using any critical materials.

He said the Canadian government had been so impressed with the machine that it was subsidizing its development.

The converter preferably burns charcoal from wood that normally has little commercial value, and gas is formed which passes through a filter and carburetor of special design.

"When charcoal is made from wood, lignin is freed. If a scientific charcoal burner is developed, it can make charcoal for the gas producer and lignin for other purposes," said Colonel McCormick. He added that birch and hickory might be used as raw material.

Charcoal as a means of propelling vehicles has already been used successfully in Sweden and Japan.

Stevenot Sees Tide Turning In Battle Against Pulp-Paper Shortage

● Evidence that the allied forces of producers, consumers and governmental agencies are gaining the offensive in the battle against acute pulp and paper shortage appeared in figures for recent months, especially when appraised in terms of indicated trends, according to Fred G. Stevenot, president of the Puget Sound Pulp & Timber Company of Bellingham, Wash.

He cited three recent developments of a mildly favorable character: (1) turn in the tide of pulpwood receipts and inventories, (2) continued stability in new supply of wood pulp available for domestic consumption and (3) at least momentary near-balance between new orders received and manufacturing capacity of the paper industry.

"Gains in pulpwood receipts were recorded during each month over the preceding month, May through August," Mr. Stevenot stated, "and end-of-month inventories were increased in both July and August, reversing the down-trend which established a recent low mark in June. New supply of wood pulp derived from domestic production and imports was close to 2,500,000 tons in the third quarter of 1943, approximately the same as in each preceding quarter since mid-1942. New orders for paper reported in September just about equaled manufac-

turing capacity, whereas for a year past monthly new orders exceeded the industry's capacity."

New supply of wood pulp provided in the third quarter of 1943 was only 2.2 per cent less than in the third quarter of 1942, according to Mr. Stevenot, in contrast with respective decreases of 16.2 per cent and 13.7 per cent in the first and second quarters of 1943 below figures for corresponding quarterly periods of 1942.

In a month-by-month comparison, receipts of new supplies of groundwood, chief ingredient of newsprint, were slightly higher in July, August and September, 1943, than in those months of 1942, and totals for all chemical grades of pulp combined finally closed the gap, showing a trifling increase in September, 1943, over that month of 1942.

"Notwithstanding traces of improvement, the national pulp and paper situation is far from past the critical stage," Mr. Stevenot declared. "There is still vital need for more wood labor, more log and pulpwood production, and every effort should be continued to limit current consumption to available new supplies, avoiding further depletion of dangerously low stocks of logs, pulpwood and wood pulp."

Post-War Possibilities of Canada's Pulp and Paper Industry

By E. HOWARD SMITH*

IT WAS suggested that I might touch on some of the post-war possibilities of the industry. This is a hazardous undertaking. It requires, however, no great stretch of the imagination to picture a world in which cellulose will play a much more important part than it does today. Wood is roughly 50 per cent cellulose and authorities have stated that one acre of forest land will produce more cellulose per annum than will a similar area planted with any other known crop. In a country such as Canada which is ideally suited for forest production—and in many places for nothing else—a thriving industry should develop from further processing of cellulose derived from wood pulp.

The industry has established a post-war planning committee which is at present engaged on a survey of this field and the sum of \$30,000 has been appropriated by the industry to carry on this investigation.

The consumption of paper and paper products today is greater than that of any other commodity. Yet this consumption, in my opinion, has not in any way reached or nearly reached saturation point. I can foresee a time when, if properly handled this industry can be of even greater value in the Dominion economy.

I am somewhat skeptical of some of the post-war planning which is being done today—not because I do not believe in the value of fundamental research, but because the immediate need at the end of the war will be jobs and more jobs.

Certain industries have improved their plants substantially to meet war needs. This is particularly true of engineering concerns who, to do their war job, have inevitably had to increase their capacity and improve their equipment.

This has not been true of Canada's pulp and paper mills. By and large, maintenance has been kept at a minimum. Necessary improvements have been postponed. There is a backlog of new construction in the pulp and paper mills which I can foresee will amount to many millions of dollars.

Work for Many

- Translating these millions into

Mr. Smith recently visited the Powell River Company, Powell River, B. C., and the British Columbia Pulp & Paper Company mill at Woodfibre, B. C.

actual jobs — and jobs, I repeat, will be the immediate need — there will be work for construction men, for millwrights, for electricians, for steamfitters, for power plant engineers. There will be work for our heavy industries, for our steel mills, for manufacturers of machinery, for producers of electrical equipment. How many man hours will be involved I cannot at present tell you but a blueprint is in course of preparation which will show the practical possibilities of this industry in providing jobs and providing them immediately once the war is over.

Suppose, for example, that each of the ten leading pre-war industries were to spend 10 per cent of the capital they had invested in 1939 on new improvements. What would this involve?

Non-ferrous metal, smelting and

refining would spend some \$19,000,000.

The electrical apparatus and supply industry would spend some \$10,000,000.

Sawmills would spend \$8,500,000.

Slaughtering and meat packing some \$7,000,000.

Petroleum products—\$6,500,000.

Butter and cheese manufacturing—\$6,000,000.

Automobiles—\$6,000,000.

Bread and bakery products — \$5,000,000.

Flour and feed mills — some \$4,800,000.

As a contrast the pulp and paper industry and the pulp and paper industry alone would spend \$60,000,000 — which is more than the total of the next six combined.

Whitelaw Succeeds Thompson As BMT Manager in Seattle

● J. W. Thompson, manager of Blake, Moffitt & Towne of Seattle for the past 15 years, has retired from active business and is succeeded in that position by James C. Whitelaw.

Mr. Thompson, who started in the paper manufacturing business in 1900 and has been in the service of BMT since

1906, declared that for some time it has been his desire to retire in order to devote more time to personal affairs. He is one of the best known paper men in the Pacific Northwest and has a wide circle of friends among the business men in that area. He has been active in civic affairs and served a term as president of the Arctic Club, is a member of the Rainier Club, the Seattle Rotary Club, and the Seattle Chamber of Commerce.

O. W. Mielke, general manager of Blake, Moffitt & Towne, with headquarters in San Francisco, said: "Mr. Thompson is one of our oldest and most valued executives. While his active services will no longer be available to us, I am happy to say he will continue on in an advisory capacity, assisting Mr. Whitelaw. We are proud of the opportunity of presenting Mr. Whitelaw as our new manager."

Formerly a resident of Seattle, where he served as sales manager of Blake, Moffitt & Towne some 12 years, Mr. Whitelaw comes to his new position from Spokane, where he opened the company's branch three years ago and served as its manager since that time.

Succeeding him at Spokane is George F. H. Taylor, who had been in charge of sales there, and whose training and experience have been as a member of the Seattle division sales staff, starting in 1922 and working up through various positions in the warehouse and office departments.

Appointed Spokane sales manager succeeding Taylor is C. C. McKinney, who joined the division three years ago. His selling experience, most of which has been in the paper business, covers a period of 14 years.



JAMES C. WHITELAW, who has moved from Spokane to Seattle to head Blake, Moffitt & Towne headquarters there.

*Excerpts from a speech by Mr. Smith, before the Advertising & Sales Executive Club in Montreal, October 6, 1943.

*His company, Howard Smith Paper Mills Ltd., operates three mills in eastern Canada.

Acid Making In the Sulphite Pulp Industry

by A. H. LUNDBERG*

CHAPTER II -- Continued

[This installment continues Mr. Lundberg's analysis of various raw acid and recovery plant arrangements. A number of flow sheets have been prepared showing different methods in use for acid making and the control of acid composition. Flow sheets 5, 6 and 8 are for cold acid recovery. The equipment and its arrangement in each flow sheet is discussed and analyzed.—Ed.]

B. Flowsheet No. 6

1. To the equipment shown on Flow Sheet No. 5 has been added the Jenssen Pressure Absorption Tower (Item 15) and its requirement of auxiliary equipment.

2. The surface cooler has been replaced with direct cooling in a cooling tower.

3. An absorption tower (Item 19) has been added in the cooking acid department.

1. The Pressure Tower

The purpose of the pressure tower is two fold.

a. To eliminate the seasonal or climatical interference in raw acid making, thus permitting the manufacture of an acid of practically any composition irrespective of the fresh water temperature.

b. To furnish a medium by which the true free SO_2 content of the cooking acid can be quickly replenished as need occurs.

As an example

Chart XVIII—A

25°C.—O lbs. G.P. gives an acid for a 17% SO_2 gas of

4.50 T.—2.95% F.—1.55% Comb. SO_2 .

While—

Chart XVIII—D

25°C.—15 lbs. G.P. gives an acid for same gas of 4.50%

T.—3.77% F.—0.77% Comb. SO_2 , or

5.82% T.—4.27% F.—1.55% Comb. SO_2 .

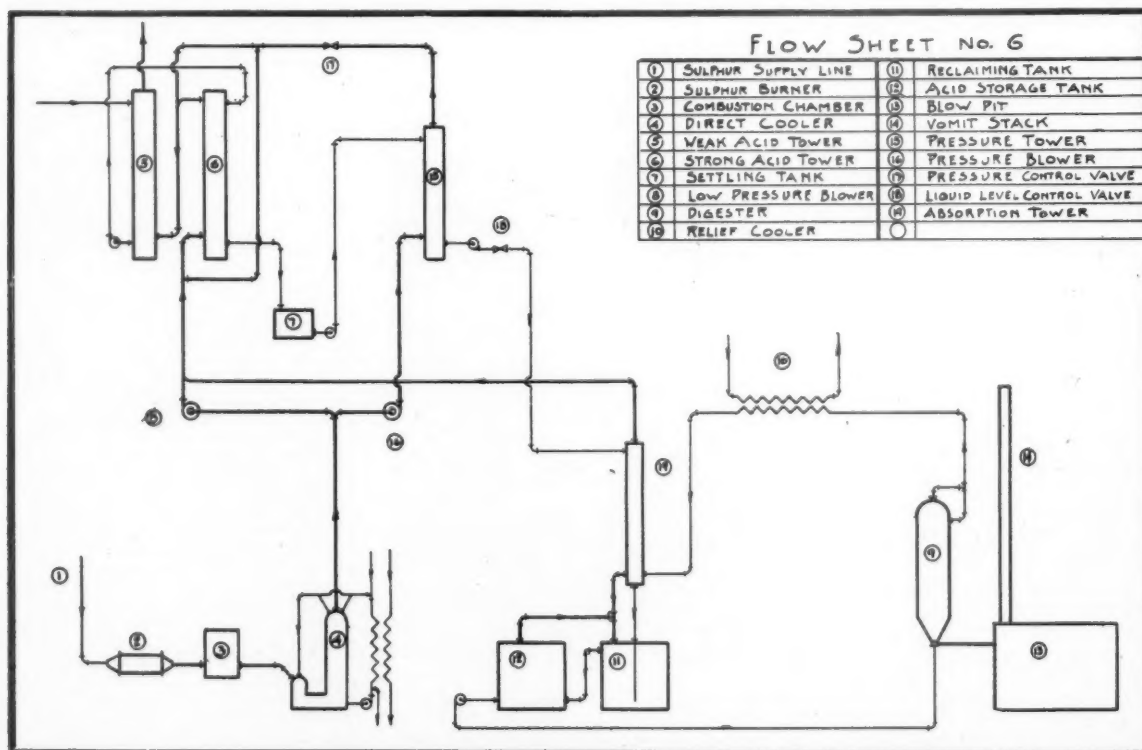
Thus by varying the pressure the percentage Comb. SO_2 to Total SO_2 can be controlled within a very wide range.

The operation of the tower is as follows:

The raw acid, whether from a stone or milk-of-lime system, is produced having the desired amount of Combined SO_2 . No attention should be paid to the per cent Total SO_2 . This raw acid is pumped to the pressure tower where it counter currently meets part or all of the burner gas.

Compression of one-third of the total burner gas volume has in most instances proven sufficient for desired results. It is recommended, however, that the blower is of ample capacity. Variable speed arrangement is of advantage.

The tower is equipped with pressure regulating valve and liquid level controller. The unabsorbed gases are



*Seattle, Washington. Mr. Lundberg is Western Manager, G. D. Jenssen Company, New York City.

Quality Sulphite Pulp



DOMESTIC
and
EXPORT
SHIPMENTS

Annual Capacity 175,000 Tons

PUGET SOUND PULP & TIMBER CO
Rollingmill Washington

SO₂ in Finished Acid
 $= 0.0460 \times 180 \times 8.33 = 69 \text{ lbs.} = 386 \text{ cu. ft. S.T.P.}$
 SO₂ absorbed in Pressure Tower
 $= 13 \text{ lbs.} = 73 \text{ cu. ft. S.T.P.}$
 SO₂ in gas return from Recovery
 $(0.28 \times 100) \div 5.6 = 5 \text{ lbs.} = 28 \text{ cu. ft. S.T.P.}$
 SO₂ in Burner Gas (69.5) 64 lbs. = 358 cu. ft. S.T.P.
 Total gas volume before fans $100 + (358 \div 0.16) = 2340 \text{ cu. ft. S.T.P.}$

Gas strength before fans $\frac{386 \times 100}{2340} = 16.5\% \text{ SO}_2$
 Gas required for strengthening tower acid $73 \div 0.165 = 442 \text{ cu. ft. S.T.P.}$
 Containing 83.5% inert gases $= 442 \times 0.835 = 370 \text{ cu. ft. S.T.P.}$
 Gas leaving pressure tower contains 5% SO₂
 $\frac{X \times 0.165}{0.835} = \frac{370 + X}{0.835} \times 0.05$
 $X = 134 \text{ cu. ft. S.T.P.}$ inert gases required to supply sufficient SO₂ for the vent gases.
 SO₂ added in Pressure $\frac{134}{0.835} \times \frac{0.165}{5.6} = 4.75 \text{ lbs.}$

24 cu. ft. S.T.P.
 Total SO₂ required for Pressure Tower = 17.8 lbs.
 99.5 cu. ft. S.T.P.
 Total Gas required for pressure Tower 602 cu. ft. S.T.P.
 corresponding to a gas volume at 95° F. saturated.

$$602 \times \frac{555}{492} \times \frac{1}{1.00 - 0.0553} = 720 \text{ cu. ft.}$$

For flow diagram and material balances see Fig. 10.

The closer the raw acid pumped to the pressure tower approaches a true bisulphite the less gas pressure the acid exerts and the smaller the SO₂ content of the overgas.

For instance in the foregoing example it would have been better practice to send all the pressure tower overgas to the strong tower instead of sending the major part to the weak tower. See Fig. 11.

As a true bisulphite does not exist (See Chapter 1 Paragraph IX), there is, however, always a danger in working too closely where Monosulphites are liable to form, causing deposits and "liming up" difficulties. Magnesium base is easier to handle, as its mono-sulphite is soluble.

The sealing water has so far been assumed collected

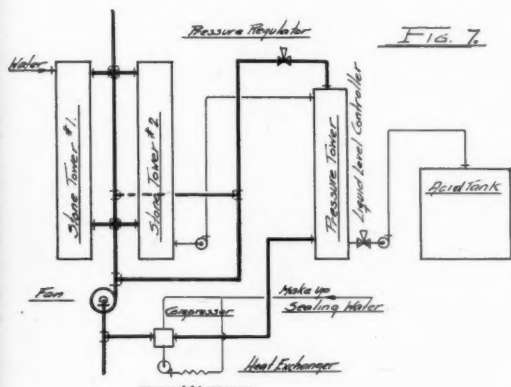


FIG. 7

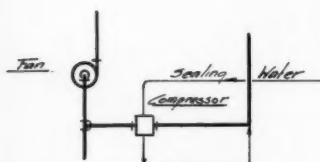


FIG. 8

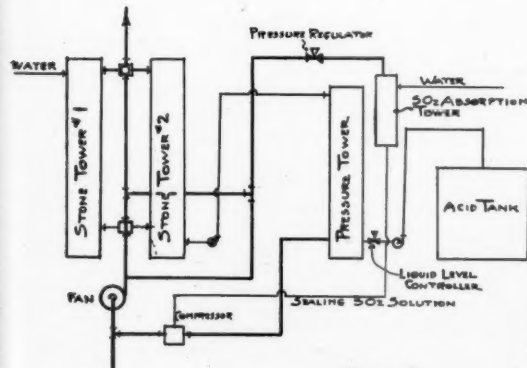
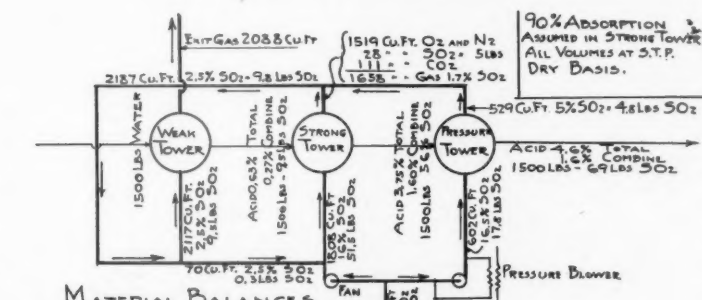


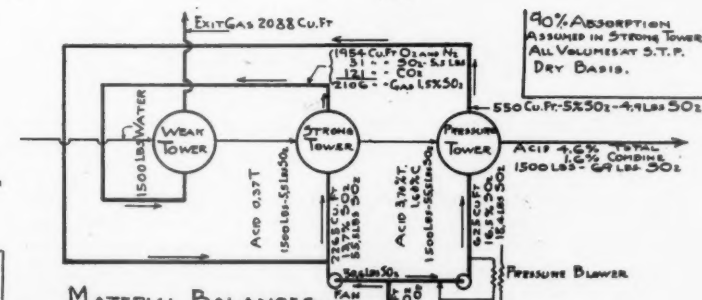
FIG. 9



MATERIAL BALANCES

TOWER DATA	WEAK		STRONG		PRESSURE	
	INPUT	OUTPUT	INPUT	OUTPUT	INPUT	OUTPUT
LBS. SO ₂	9.5	9.5	51.5	56.0	17.8	69.0
Cu. Ft. GAS	2117	2088	1808	1658	602	529
Cu. Ft. SO ₂ IN ACID	-	53	53	314	313	386
Cu. Ft. CO ₂	2117	2141	1861	1972	915	915
	24	-	111	-	-	-
	2141	2141	1972	1972	915	915

FIG. 10



MATERIAL BALANCES

TOWER DATA	WEAK		STRONG		PRESSURE	
	INPUT	OUTPUT	INPUT	OUTPUT	INPUT	OUTPUT
LBS. SO ₂	5.8	5.8	55.5	58.5	17.8	69.0
Cu. Ft. GAS	2106	2088	2765	2106	625	550
Cu. Ft. SO ₂ IN ACID	-	31	31	311	311	386
Cu. Ft. CO ₂	2106	2119	2296	2417	936	936
	13	-	121	-	-	-
	2119	2119	2417	2417	936	936

FIG. 11

and reused. In the following calculation the sealing water will be assumed permitted to enter the pressure tower with the gas. Further will be assumed that the pressure blower gives a positive volume.

Sealing water required 24 U.S. Gals. 200 lbs. per min.
Capacity pressure blower 750 cu. ft. per min. at 95° dry air.

All other data same as before.

Step 1. Find Combined and Total SO₂ required in stone tower acid.

$$X = \frac{1500 \times 0.016}{1300} = 1.85\% \text{ Comb. SO}_2$$

$$4.27\% \text{ Total SO}_2$$

Step 2. Assume heat of compression 2° F.

Finished acid temp. 88° F. (86° F. Charts will be used).

Stone tower acid $66 + (2.42 \times 1.8 + 1.85 \times 7.2) + 3 = \text{abt. } 86^\circ \text{ F.}$

Step 3. Pressure required slightly under 5 lbs. G.P.

Step 4. Gas pressure (Chart XIX-B) approximately 5% SO₂.

Step 5. Find capacity of blower at S.T.P.

$$750 \times \frac{492}{555} \times 0.9447 = 625 \text{ cu. ft. S.T.P. per min.}$$

Step 6. Calculate gas quantities.

SO₂ in Tower Acid
 $0.0427 \times 1300 = 55.5 \text{ lbs.}$ 310 cu. ft. S.T.P.

SO₂ in Finished Acid
 $0.0460 \times 1500 = 69 \text{ lbs.}$ 386 cu. ft. S.T.P.

SO₂ absorbed in Pressure Tower
13.5 lbs. 76 cu. ft. S.T.P.

Total gas volume before fans 2340 cu. ft. S.T.P.

Gas strength before fans 16.5% SO₂

SO₂ in gas from blower
 $625 \times .165 \div 5.6 = 18.4 \text{ lbs.}$ 103 cu. ft. S.T.P.

SO₂ leaving Pressure Tower
 $18.4 - 13.5 = 4.9 \text{ lbs.}$ 28 cu. ft. S.T.P.

For flow diagram and material balances see Fig. 12.

As noted the adding of the sealing water to the pressure tower made no difference in the result, but if the quantity of sealing water increases to a point where the stone tower acid gets up to 5.00% Total and above, then difficulties most likely will arise. The weaker the stone tower acid can be kept the better acid plant operation.

Another method of handling the sealing water has been proposed, see Fig. 9. This method involves an extra tower and is of special interest where the pressure tower is too small for efficient absorption. See Fig. 13.

Data from previous calculations are used with the exception that the over gas from the pressure tower contains 10% SO₂.

The value of the pressure tower dealing with burner gases of 10-12% SO₂ as from pyrites burning is demonstrated in the following calculations.

Earlier data are used except the 16% burner gas has been replaced by a gas containing 11% SO₂.

Step 1. Temperature of finished acid 86° F.

Step 2. Best acid 1.60% Comb. for 11% Gas is 3.60% Total SO₂ (Chart XXIII).

Step 3. Chart XIX-C shows 10 lbs. G.P. required.

Step 4. Gas pressure approximately 3% SO₂.

Step 5. Calculate gas quantities.

SO₂ in Tower Acid
 $0.036 \times 1500 = 54 \text{ lbs.} = 303 \text{ cu. ft. S.T.P.}$

SO₂ in Finished Acid
 $0.046 \times 1500 = 69 \text{ lbs.} = 386 \text{ cu. ft. S.T.P.}$

PACIFIC PULP & PAPER INDUSTRY

SO₂ absorbed in Pressure Tower

$$= 15 \text{ lbs.} = 83 \text{ cu. ft. S.T.P.}$$

SO₂ in gas return from Recovery

$$= 5 \text{ lbs.} = 28 \text{ cu. ft. S.T.P.}$$

SO₂ in Burner Gas = 64 lbs. = 358 cu. ft. S.T.P.

Total gas volume before fans

$$100 + 358 \div 0.11 = 3350 \text{ cu. ft. S.T.P.}$$

Gas strength before fans 11.5% SO₂

Gas required for strengthening tower acid

$$83 \div 0.115 = 722 \text{ cu. ft. S.T.P.}$$

Containing 88.5% inert gases

$$722 \times 0.885 = 640 \text{ cu. ft. S.T.P.}$$

Gas leaving pressure contains 3% SO₂.

$$\frac{X \times 0.115}{0.885} = \left[\frac{640 + X}{0.885} \right] \times 0.03$$

X = 200 cu. ft. S.T.P. inert gases required to supply sufficient SO₂ vent gases.

SO₂ added in Pressure Tower

$$\frac{200 \times 0.115}{0.885 \times 5.6} = 4.6 \text{ lbs.} = 26 \text{ cu. ft. S.T.P.}$$

Total SO₂ required for Pressure Tower

$$19.6 \text{ lbs.} = 110 \text{ cu. ft. S.T.P.}$$

Total gas required for Pressure Tower

$$956 \text{ cu. ft. S.T.P.}$$

Corresponding to a gas volume at 95° F. Saturated.

$$956 \times \frac{555}{492} \times \frac{1}{0.9447} = 1144 \text{ cu. ft.}$$

B. Replenishing of the true free SO₂ in the Cooking Acid

Following data are assumed.

Raw Acid per minute 180 U.S. Gals. = 1500 lbs.

Burner Gas 16% SO₂ Saturated 95° F.

Gas Temp. 95° F.

Recovery system gas return per min. 100 cu. ft. S.T.P.

Gas Strength 28% SO₂.

Fresh water temp. 66° F.

Usual raw acid

$$\begin{aligned} &4.25\% \text{ Total SO}_2 \\ &2.45\% \text{ Free SO}_2 \\ &1.80\% \text{ Comb. SO}_2 \end{aligned}$$

Usual Cooking Acid

$$\begin{aligned} &6.00\% \text{ Total SO}_2 \\ &4.80\% \text{ Free SO}_2 \\ &1.20\% \text{ Comb. SO}_2 \end{aligned}$$

Present Cooking Acid

$$\begin{aligned} &5.00\% \text{ Total SO}_2 \\ &3.80\% \text{ Free SO}_2 \\ &1.20\% \text{ Comb. SO}_2 \end{aligned}$$

Cooking acid per min. 320 U.S. Gals. = 2670 lbs.

It is further assumed that the cooking acid will remain at its usual strength once the true free has been replenished.

The question is how long will it take to build up the acid.

Step 1. Find finished acid temperature.

3° F. rise assumed for heat in gases.

$$66 + (2.45 \times 1.8) + (1.80 \times 7.2) + 3 = \text{abt } 86^\circ \text{ F.}$$

Step 2. Consult saturation chart XIX-D for maximum per cent.

Total SO₂ Acid of 1.80% Comb. SO₂ and 16% SO₂ Gas.

Best acid 5.75% Total—1.80 Comb. SO₂.

Step 3. Gas pressure exerted by 4.25% T.—1.80% C. SO₂ acid per Chart XIX-D approximately 4% SO₂.

Step 4. Calculate gas quantities.

SO₂ in Tower Acid

$$0.0425 \times 180 \times 8.33 = 63.8 \text{ lbs.} = 357 \text{ cu. ft. S.T.P.}$$

SO₂ in Finished Acid
 $0.0575 \times 180 \times 8.33 = 86.3 \text{ lbs.} = 483 \text{ cu. ft. S.T.P.}$

SO₂ absorbed in Pressure Tower
 $= 22.5 \text{ lbs.} = 126 \text{ cu. ft. S.T.P.}$

SO₂ in Gas return from Recovery
 $= 5 \text{ lbs.} = 28 \text{ cu. ft. S.T.P.}$

SO₂ in Burner Gas
 $= 81.3 \text{ lbs.} = 455 \text{ cu. ft. S.T.P.}$

Total gas volume before fans
 $100 + (455 \div 0.16) = 2945 \text{ cu. ft. S.T.P.}$

Gas strength before fans
 $(483 \times 100) \div 2945 = 16.4\% \text{ SO}_2$

Gas required for strengthening Tower Acid
 $126 \div 0.164 = 768 \text{ cu. ft. S.T.P.}$

Containing 83.6% inert gases
 $768 \times 0.836 = 642 \text{ cu. ft. S.T.P.}$

Gas leaving Pressure Tower contains 4% SO₂.

$$\frac{X \times 0.164}{0.836} = \left\{ 642 + \frac{X}{0.836} \right\} \times 0.04$$

$X = 173 \text{ cu. ft. S.T.P.}$ inert gases required to supply sufficient SO₂ for the vent gases.

SO₂ added in Pressure Tower
 $\frac{173 \times 0.164}{0.836 \times 5.6} = 6.1 \text{ lbs.} = 34 \text{ cu. ft. S.T.P.}$

Total SO₂ required for pressure tower
 $= 28.6 \text{ lbs.} = 160 \text{ cu. ft. S.T.P.}$

Total Gas required for pressure tower 975 cu. ft. S.T.P.

Corresponding to a gas volume at 95° F. saturated.

$\frac{975 \times 555}{492 \times 1.00 - 0.0553} = 1170 \text{ cu. ft. See Fig. 14.}$

Thus if the burner, cooling and other acid making equipment can handle the extra tonnage of sulphur that has to be burned and the volume of gas to be handled, then each minute an extra 22.5 lbs. SO₂ can be added to the cooking acid.

The length of time it will take to build up the acid to its full strength will depend on the amount of acid on hand in storage.

If for example the storage holds 270,000 gals. = 2,250,000 lbs. of acid and same is short 1.00% SO₂ = 22500 lbs., it will take

22500

or about 17 hours.

$\frac{22.5 \times 60}{22500}$

Without the pressure tower, or other similar means, the true free cannot be replenished without an increase in the combined SO₂. (See Tower Acid Charts XXI—XXIV). The extra combined represents a direct loss of sulphur. It is true the acid shows a net gain in free SO₂, but as the better part of this SO₂ is tied to the bisulphite, same has to be broken down before the SO₂ is available. Breaking up of the calcium bisulphite means formation of the insoluble calcium mono-sulphite and grief.

The calculations presented are based on the saturation charts and perfect absorption. In practice, size of tower installed is usually governed by actual needs and cost of installation.

With permission of the Weyerhaeuser Timber Co., survey of their acid plant at Longview, Wash., is given on this page.

The acid making equipment consists of Jenssen two tower acid system with sulphur burners and surface coolers, Pressure Tower and Chemipulp two stage hot acid recovery process.

Sulphur burned 36.15 tons per 24 hrs. or 50.2 lbs. per minute, which disregarding any SO₂ conversion gives 100.4 lbs. SO₂ per min.

Average gas strength to pressure towers 17.5% SO₂. The Recovered Acid used (acid from vomit stack SO₂ recovery system) 314000 Gallons per 24 hours or 1820 lbs. per min.

Temperature of recovered acid abt 17.3° C.

The Recovered acid contained 0.6% Total SO₂ thus 10.9 lbs. SO₂ per min.

Total SO₂ introduced to acid system

$100.4 + 10.9 = 111.3 \text{ lbs. SO}_2 \text{ per min.}$

Total Losses

.7 lbs. SO₂ per min.

SO₂ Absorption

110.6 lbs. per min.

WEYERHAEUSER TIMBER COMPANY, LONGVIEW, WASH.

Acid Plant Tests Conducted by the Chemical Department on Jan. 28, 1942

Time P.M.	Gals. Hr.	Recov. Acid Temp.	% SO ₂ To Str. Tower	Jenssen Acid Tot. Free Comb.	Temp.	Pressure Tower			Finished Acid Analysis Tot. Free Comb.	Gas Fan		
						Lb. Pr.	%SO ₂ in Gas From	To		Vac."	Pr."	W.C.
2.50	13200	17.4° C.	14.2	-----	25.4° C.	9.5	9.5	17.6	5.32-3.46-1.86	5.8	5.2	
3.00		17.0° C.	-----	-----	-----	-----	-----	17.6	-----	-----	-----	
3.10	14050	-----	-----	5.02-2.94-2.08	-----	10.0	11.8	17.7	-----	-----	-----	
		-----	-----	-----	-----	9.5	9.9	17.2	-----	-----	-----	
3.20	14000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
		-----	15.8	5.02-2.90-2.12	-----	-----	-----	-----	5.28-3.40-1.88	6.2	4.8	
3.30	13950	-----	-----	-----	-----	9.5	10.0	17.4	-----	-----	-----	
		-----	15.8	-----	-----	-----	-----	-----	-----	-----	-----	
3.40	13850	-----	15.6	-----	-----	9.6	10.0	17.6	-----	6.2	4.8	
3.50		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
4.00		17.6° C.	-----	5.04-2.94-2.10	21.4° C.	-----	-----	-----	-----	-----	-----	
4.10		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
4.20	13650	-----	-----	4.98-2.94-2.04	-----	9.6	10.3	17.7	-----	-----	-----	
		-----	14.4	-----	-----	-----	-----	-----	-----	-----	-----	
4.30	13650	-----	15.6	-----	-----	9.8	9.9	17.3	-----	-----	-----	
		-----	-----	-----	-----	-----	-----	17.7	-----	-----	-----	
4.40	13650	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Instructions to Acid Makers to hold 1.85% Combined in finished acid.

Total Sulphur Burned—36.15 tons per 24 hrs.

Recovered Acid Volume—314,000 gallons per 24 hrs.

Stone Tower Acid averaged

5.01% Total SO₂
2.93% Free SO₂
2.08% Comb. SO₂
23.4° C. Temp.

Finished Acid averaged

5.30% Total SO₂
3.43% Free SO₂
1.87% Comb. SO₂

Finished Acid made

110.6

— = 2087 lbs. per min.

0.053

Dilution water

267 lbs. per min.

Thus SO₂ absorbed in Stone Towers 91.4 lbs. per min.

SO₂ absorbed in Pressure Tower 19.2 lbs. per min.

110.6

SO₂ in Tower Acid

$0.0501 \times 1820 = 91.2 \text{ lbs.} = 511 \text{ cu. ft. S.T.P.}$

SO₂ in Finished Acid

$0.053 \times 2087 = 110.6 \text{ lbs.} = 619 \text{ cu. ft. S.T.P.}$

SO₂ absorbed in Pressure Tower

19.4 lbs. = 107 cu. ft. S.T.P.

SO₂ in Burner Gas

100.4 lbs. = 562 cu. ft. S.T.P.

Total gas volume before fans $562 \div 0.175$

Gas required for strengthening tower acid

$109 \div 0.175 = 623 \text{ cu. ft. S.T.P.}$

Containing 82.5% inert gases

$623 \times 0.825 = 514 \text{ cu. ft. S.T.P.}$

Gas leaving Pressure Tower contains 10% SO₂.

$X \times 0.175$

0.825

SO₂ in Vent Gases

565×0.175

0.825

0.825×5.6

Total SO₂ required for Pressure Tower

40.8 lbs. = 228 cu. ft. S.T.P.

Total Gas required for Pressure Tower

1305 cu. ft. S.T.P.

Corresponding to Gas Volume at 77° F.

537

$1305 \times \frac{537}{472} = 1480 \text{ cu. ft.}$

For flow diagram and material balances see Fig. 15.

According to Chart XVIII, 25° C. — 10 lbs. Pressure. Vent gas from pressure tower should only contain about 5% SO₂ instead of actual 10% SO₂.

Assuming the blower capacity is as above and pressure limited to 10 lbs., then the efficiency can be calculated.

The 10% SO₂ vent gas contains 21.4 lbs. SO₂

A 5% SO₂ vent gas thus 10.7 lbs. SO₂

SO₂ supplied the Pressure Tower 40.8 lbs.

Maximum absorption 30.1 lbs. SO₂.

Actual absorption 19.4 lbs. SO₂.

Thus the efficiency about 65%.

As mentioned earlier with proper size tower the efficiency can be greatly improved.

2. The Direct Cooler

Accident Is Fatal

Miss E. Lily Fabriani, clerical assistant to R. G. Macdonald, secretary-treasurer of TAPPI, died October 12 as the result of an automobile accident. Miss Fabriani was well known to many in the industry, having been the registrar at several TAPPI meetings.

Nelson Spencer Dies

Nelson Spencer, head of the logging and sawmilling organization which recently took over the operation of Sorg Pulp Company's pulp mill at Port Mellon, Howe Sound, died suddenly September 29. He was one of British Columbia's best known lumber operators.

Six More Inducted

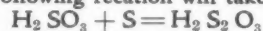
● Six employees of the Camas, Wash., mill of Crown Zellerbach Corp., left November 12 to report for duty with the armed forces. They are James B. Knight Jr., paper machines; Vic Beard, machine shop; Lawrence Koplin, technical control; George Henderson, bag factory; George Karnath, construction, and Lloyd Eifer, chipper plant.

PACIFIC PULP & PAPER INDUSTRY

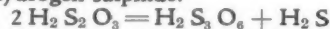
Cooling of burner gases was discussed in Chapter I, Paragraph VIII and Chapter II, Paragraph VII.

The importance of eliminating free elemental sulphur from the cooking acid has been pointed out by many authors.

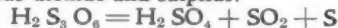
Professor Klason has shown that when free sulphur is present in the acid to the extent of 150 milligrams per liter, the following reaction will take place:



The thio-sulphuric acid will then form tri-thionic acid and hydrogen sulphide.



and the tri-thionic acid will break up into sulphuric acid, sulphur dioxide and sulphur.



This process will continue as long as there is any sulphurous acid or bisulphite left in solution.

In the paper "Unbleached Sulphite Pulp from Western Hemlock,"¹⁰ it is pointed out that indications are that even the presence of sulphur in undetectable quantities may affect digester operation.

Quote. "From time to time it has been noticed that the unbleached pulp strength fluctuated and no apparent reason could be advanced for these fluctuations. The presence of sulphur was suspected of causing the fluctuations particularly since it was felt that the catalytic effect of the sulphur would be enhanced by higher cooking temperatures. However, careful analysis of the cooking acid failed to show any trace of free Sulphur, so sulphur was eliminated as a probable cause for the drop in pulp strength. Eventually, however, the acid filtering system was changed so that the acid was filtered before being sent to the storage tanks. Immediately fluctuations in strength disappeared." Unquote.

Neither the scrubbing or cooling tower, however, is efficient enough to eliminate all the sublimed sulphur present in the burner gases, but some will be eliminated, as will part of the sulphur trioxide (SO₃) formed during combustion.

For effective elimination of the free sulphur and other impurities in the raw acid a gravity type sand filter is recommended.

3. The Absorption Tower

The function and importance of the absorption tower was discussed fully under analysis of Flow Sheet No. 5. Conclusions

The layout as per Flow Sheet No. 6 has distinct advantages over the one shown on Flow Sheet No. 5.

1. Control over the acid composition is assured.
2. The strength of the cooking acid can be built up quickly as needed.
3. The reclaiming system has been improved, but there is still no control of the fluctuation relief gas flow to the acid plant, nor is the upsetting effect caused by filling the digester with acid eliminated.

The raw acid and cooking acid department are still integrated parts of each other.

Note: The third tower arrangement Fig. 3 would be of definite advantage.

¹⁰G. H. McGregor, W. H. Kelly and H. R. Heuer, Paper Trade Journal, TAPPI Section, Jan. 28, 1937.

Stockton Employees Get Service Pins

● The annual service pin dinner for employees of the Stockton, Calif., division, Fibreboard Products Inc., ordinarily held in September, was called off this year because of food rationing and other difficulties arising from war conditions. This, however, did not prevent the usual awards.

Twenty-five pins for 20 years of service were awarded. These went to Paul H. Keller, resident manager; Hyman L. Rammer, chief chemist; Charles S. Orr, maintenance superintendent; Edith Yetter, Mike Dambrosio, Eddie Schatz, Chris Anderson, F. Carrillo, Manuel Deiro, P. Estrada, Willard Gordon, M. Orosco, Frank Lucchesi, Joe Carlson, Charles Klein, Walter Phelan, C. Borelli, Joe Valverde, M. Villaneuva, E. J. Vincent, Calvin Leple, Robert McCarthey, Leo Metzner, O. Stankewich and Allen Hahn.

There were 45 pins given to those who reached 15 years of service. They were: William Burke, office manager; Silas Stites, chief electrician; Leslie Reed, who is in the service, and A. Sanguinetti, Claudia Lambert, John Mazzera, Rosa Pinasco, Sam Gammon, Edna Hatch, Mary Hopper, Russel Laughlin, Lillian Overmyer, Joutwert Ponne, Marion Sanders, Frank Schmidt, Sam Cuatrone, Esequiel Alvarez, Carl Billups, Archie Douglas, Frank Francois, Louis Foreka, Leah Krause, Julia Lanata, E. McLaughlin, Mrs. Alec Zaremba, Chas. Foletta, Jack Fuller, Maxim Rowe, Amanuel Gardia, Evan Wunderlich, Frank Casselman, Emmet Leahy, Audley DeYoung, Edward Higgins, George Nelson, Russell Rowe, Norbert Young, Victor Reidholm, John D. Gallagher, Vincent Beccio, Floyd Newens, Floyd Erz, Ralph McDonald, Thomas Young and Everett Smith.

Forty-three ten year pins were given out, including one to Herbert Helmholtz, who is in the service. There were fifteen awards of five year pins, three of them to service men—Ray Jacopetti, Austin Klieves and Norman Burke.

Hartwig, Mrs. Berney Take Part In Session

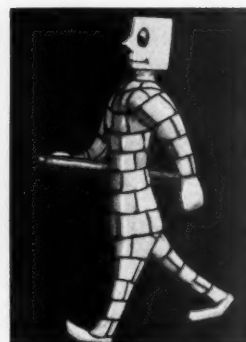
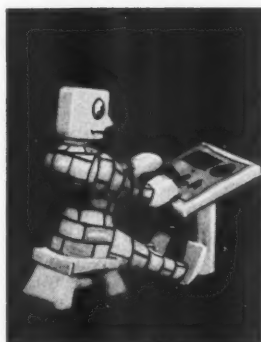
At the recent Pacific Northwest Personnel Management Association sessions from October 28 to 30 at the Multnomah Hotel, Portland, Ore., the assistant general conference chairman was Otto R. Hartwig, of the Industrial Relations Department, Crown Zellerbach Corporation, and Rayonier Incorporated.

Mrs. Vera Berney, assistant personnel supervisor at the Camas, Wash., mill of Crown Zellerbach Corporation, was one of the seven women in a one-hour panel discussion of "Women In Industry."

New Holbrook Book

● A well-written history of North American forest fires is the newest book by Stewart Holbrook, of Seattle, former logger, fire-fighter, editor and now an author with many friends in the northwest woods industries.

The book, entitled "Burning an Empire," tells the story of the disastrous Tillamook Fire in Oregon in 1933, which he says was started by a "haywire" logging outfit, and records details of many other dramatic fires. Mr. Holbrook reports there were no less than 1,736 fires blazing at one time in Montana and Idaho in 1910.



PROPERLY ENGINEERED & INSTALLED LININGS assure LONG LIFE

DESIGN . . .

Our fifty-nine years of experience in the pulp and paper industry enables us to offer an outstanding service in the design of linings for tanks or vessels and the building of tanks to handle a wide variety of material for storage and processing.

MATERIALS . . .

Our well-equipped research department has developed a wide range of special lining materials for use today in meeting the all-out war effort to increase production and maintain equipment on the line without interruption.

WORKMANSHIP . . .

Stebbins workmanship combines the mechanically sound design, materials and correct chemical formulae into linings and tanks which assure long life, trouble-free installations, so necessary under today's severe operating conditions.

Consult Stebbins today for complete and reliable lining installation service.



Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE, WASHINGTON

Congratulations, One and All

Hesse-Ersted Iron Works

A quiet celebration of a big event on September 27, when Hesse-Ersted Iron Works had a second gold star added to its Maritime M flag. A. M. Mears, secretary-treasurer, lauded the workers for another six months period of high achievement.

A lot of pulp and paper mill friends of Kenneth B. Hall, president of the Portland firm, have been missing his visits of late. The reason is given above—he and Art Mears and their crew have been busy adding stars to their flag.

Hercules Powder Co.

Hercules Powder Company has raised Army-Navy E flags at its Radford Ordnance Works and its Kenvil, N. J., Parlin, N. J., Hopewell, Va., Port Ewen, N. Y., Belvidere, N. J., Mansfield, Mass., and Hercules, Calif., plants. Under war department rules, 1,800 employees of Wilmington, Del., home office now can wear E pins because majority of total employment has received the award.

Neenah Paper Co.

An Army-Navy E for the company and lapel buttons for employees presented to Neenah Paper Co., Neenah, Wis. This is the first rag content paper mill in the country to get an E. As far as our records show, it may be the only paper production mill that has as yet received such an award. Converters have been winners.

Sumner Iron Works

Gold star added to Maritime M flag for Sumner Iron Works, Everett, Wash., announced in congratulatory letter from U. S. Maritime Commissioner H. L. Vickery on September 3.

E. I. Flateboe, president and general manager, replied with thanks from the entire personnel.

Weyerhaeuser Timber Co.

The lumber division of Weyerhaeuser Timber Company at Longview, Wash., on same grounds as No. 1 mill of the pulp division, got one of only three E awards handed out so far to logging and lumbering industries. This mill is reputedly the biggest producer of aircraft lumber in the world.

Shartle Brothers

An Army-Navy star added to E pennant for Shartle Brothers, Middletown, O., paper machinery makers in normal times but now 98 per cent on war equipment for the Navy and government.

Link-Belt Co.

Army-Navy E award ceremonies have been recorded as held at the Link-Belt Ordnance Company in Chicago, at the Link-Belt Ewart plant in Indianapolis and at Pershing Road plant of Link-Belt Company in Chicago.

Burned-Out Roofing Company Is In Market for New Equipment

● Unable to find a suitable roofing machine for sale anywhere in the country and uncertain as to where he could find other needed equipment, Jesse E. Berkheimer, veteran Tacoma, Wash., manufacturer of roofing felts, is still hoping to make a "comeback" after a disastrous fire.

A spectacular all-night blaze on October 28 destroyed the J. E. Berkheimer Manufacturing Company plant at 2928 South M Street, Tacoma—only the office still being wholly intact. The plant was partially insured.

Because of the critical need for roofing materials and the fact that this plant housed the only roofing felt machine west of Minneapolis and in more than 1,000 miles between San Francisco and Victoria, B. C., Mr. Berkheimer was hopeful that federal agencies would facilitate a restoration of the plant.

Charles F. Humble, superintendent, said three beaters, a rag cutter, beater motors that need to be rewound and pumps could be put into operating order again.

A nine-ton capacity, 60-inch, single sheet felt mill and a roofing machine with a 150 square-per-hour capacity were destroyed. Also destroyed was a small saturating machine which made asphalt sheeting building paper with paper stock bought from the Inland Empire Paper Company of Millwood (Spokane), Wash.

Composition roofing and shingles, roofing felt, saturating felt and asphalt and brick siding were products of the plant.

The plant was destroyed in a fire in 1938 and restored, but this was before wartime restrictions on building and equipment. Except for these interruptions the plant has been operated continuously since 1910 by Mr. Berkheimer. His small branch paint plant in Portland, Ore., was destroyed in a fire in March but has been rebuilt since and is again operating.

Because of the manpower shortage, the Tacoma mill was operating only 12 hours a day. If an around the clock force had been employed, the fire, believed caused by spontaneous ignition in the rag room, might have been put out before causing damage. It began when operations were down. Normally, full time crews would total 80 employees. Oil, tars and chemicals and other inflammable materials are stored in the plant.

The company is understood to be in the market for a double sheet, 76-inch felt machine if such a one is obtainable.

Shaffer, Former Owner Of Tacoma Mill, Dies

● Ralph Shaffer, civic and business leader in Tacoma, Wash., for many years and the founder and first operator of the now dismantled sulphite pulp mill in that city, died in a Seattle hospital October 20 after a two year illness. He was 59 years old.

The mill he founded, which was later acquired by Rayonier Incorporated, made sulphite pulp for fourteen years before it was forced to close just a year ago as a result of the WPB log allocation order, arising from the critical log shortage.

Mr. Shaffer also was president of the Shaffer Terminals in Tacoma and vice president of the Puget Sound National

Bank. He was former head of the Tacoma Community Chest.

Born in Troy, Ohio, he came to the northwest in 1909 and his first position was assistant general manager of the Tacoma Perkins Press, which published the Tacoma Ledger, a newspaper.

On the site of the now abandoned pulp mill, he first manufactured box shooks. Then the Shaffer Box Company in December, 1928 became the Shaffer Pulp Company, one of the pioneer sulphite pulp mill operations in this region. On September 1, 1936, the Shaffer mill was sold to the Rainier Pulp & Paper Company of Shelton, Wash., one of the firms later consolidated as Rayonier Incorporated.

When closed last November 1, the mill's capacity was 150 tons of unbleached sulphite pulp per day. This was shipped to the Rayonier mill at Shelton where it was bleached and dried (the Shelton mill was closed in August of this year).

The Tacoma mill and equipment was sold in April to Bagley and Sewall Company of Watertown, N. Y. Much of the mill equipment has been sold by a representative of this eastern concern, whose headquarters are at the mill. Some equipment has gone to a pulp company in Brazil.

Mr. Shaffer is survived by his widow, Muriel.

St. Regis Plans Paper Bag Plant

● The St. Regis Paper Company of New York has completed plans for the immediate erection of a new multiwall paper bag manufacturing plant in North Kansas City, Mo. Reports of the construction program were published in this magazine last month. Because of the ever growing demand for heavy duty multiwall paper bags to carry foodstuffs, chemicals, fertilizers and building materials for essential civilian requirements, sustenance of the armed forces and for lend-lease, the government has approved the full-speed-ahead completion of this project.

The announcement says Kraft pulp used "will come from nearby points" and will reduce freight car shipments mileage of Kraft pulp from the Pacific Northwest to mills in the East.

Construction will start at once and the plant will be in full operation early in 1944, equipped to make sewn, pasted, valve and open-mouth bags and shipping containers, as well as small flour bags and sugar pockets.

The new plant will be the eleventh bag factory operated in the United States by St. Regis Paper Company, pioneers in the manufacture of heavy-duty multiwall paper bags for domestic and overseas shipments. In addition to the network of 11 bag plants in this country, St. Regis has three factories in Canada and three in South America. There are four factories on the Pacific Coast, including one at Vancouver, B. C.

Cameron Official Dies

● C. C. Van Stry, eastern sales engineer for the Cameron Machine Company of Brooklyn, died at his home in West New York, N. J., October 14. Mr. Van Stry is survived by his widow and a son, John, with the U. S. Navy Air Forces. Van, as he was called by friends, was known by paper mill officials all along the East coast south of New York, in which territory he represented Cameron Company for 15 years.

Fred H. Hurst Reopens Office

Fred H. Hurst, pulp and paper mill designer and engineer, has reopened his offices and is now associated with C. H. Kable, architect, in (605 Yeon Building) Portland, Ore.

Until recently, Mr. Hurst was a design engineer with the Kaiser shipyards in Portland and Vancouver, Wash.

He was master mechanic at the Crown Zellerbach mill at Camas in 1926. Before that, and again in later years he was associated with the late V. D. Simons, Chicago consulting engineer. In that period he did work at mills in Camas, St. Helens, Hoquiam and Oregon City. In 1931-2 he was with Otto C. Schoenwerk, of Chicago, consulting engineering for the pulp division, Weyerhaeuser Timber Company. More recently, Mr. Hurst assisted in design of Rayonier's Fernandina, Fla., mill.

Bulkley, Dunton Position

The New York office of the Bulkley, Dunton Pulp Company, Inc., announced the appointment of Mr. Stephen Goerl, formerly with Young and Rubicam, to its staff. Mr. Goerl will be in charge of advertising and publicity.



Government Plans Alcohol Plant

Industrial alcohol could be made from waste mill wood and sawdust, and already the government is contemplating a 5,000,000 gallon plant somewhere in the nation, Stephen Wyckoff, director of the Pacific Northwest Forest Experiment Station, told the Oregon Chemurgic Council in Pendleton, Ore., at a meeting Oct. 19.

Establishment of the plant, Wyckoff pointed out, would serve to pioneer in engineering experience, and lay the foundation for further expansion, if the project was found to be desirable.

He said that Northwestern forestry officials are conducting a survey to determine if conditions, including ample supply of waste wood, exist in this part of the country and if the plan is feasible, a plant will be erected. He gave as his opinion that a plant might be erected in the Pacific Northwest or the southeastern states, and expressed the hope that the Pacific area would be selected.

In explaining how the alcohol could be made, Mr. Wyckoff said that through the use of the Scholler patents, excellent yields of alcohol could be derived from waste from Douglas fir, ponderosa pine and possibly other types of wood—since experiments are still being conducted. The patents, now available through the federal government, were formerly in German hands.

As for costs, he said, all indications are that alcohol from wood can be produced at a smaller cost per gallon in this country than in Germany, where the Scholler process is now in widespread use.

"Production should be viewed from two standpoints," said the speaker, "first, emergency production in wartime and second, competitive production during the post-war period. If a commercial use could be found for lignin, which is a by-product of the processing of wood into alcohol, probably this alcohol could compete successfully with alcohol obtained from molasses, grain or other sources. Should this become a fact, possibilities are tremendous, and if alcohol were mixed with petroleum products for motor fuel use, the demand might become 'astronomical,' and is one possible way to offset the depletion of America's oil reserves.

"With 550,000,000 gallons needed for the present fiscal year as compared with a demand for 106,000,000 gallons in 1936, war-time demand for alcohol is mounting by leaps and bounds."

Paul M. Dunn, dean of the school of forestry, Oregon State College, stressed Oregon and Northwest responsibility in maintaining natural resources.

"What we must determine is our future course," he said. "We might bring in new industries not to cut more timber, but to use more. In the past, we have not been very efficient users."

Sam Cole Retires

Sam Cole, veteran paper maker at the West Linn, Ore., division of Crown Zellerbach Corporation, recently retired. Nearly a year ago he had a major operation, and has not fully recovered his health.

Mr. Cole was born in England on February 27, 1872. All of his life has been devoted to paper making. He was at West Linn for a period after 1917, as machine tender and since 1935 as boss machinist tender's helper.

Swedes Solve Wood Shortage

● How Sweden solved the wood shortage is told by Per Wijkman, Consul General for Sweden, in Canada.

The consul general related how over 40,000 non-professional woodcutters were used and got out the largest quantity of wood that has ever been cut in Sweden, during the period July, 1942-June, 1943.

The consul general said that no less than 1,836,500,000 feet of wood were cut in that period. Of that, about three-fifths was fuel wood, necessary to compensate for the reduction in imports of coal and coke, and the remainder consisted of pulpwood.

Mr. Wijkman said that part of the

1943 conscript class participated in the wood-cutting for some months, being part of the 40,000 non-professional woodcutters. It is estimated, he said, that the non-professional workers cut about a fifth of the total quantity.

"Naturally it was not possible to produce this big quantity of wood by means of the ordinary loggers alone," Mr. Wijkman said. "The large number of hands who had not worked in the forests before had to be trained. Extensive arrangements were made for the training and quartering of the hands, and it costs between 40 and 50 million kroner or \$12,500,000. As many as 2,400 camps were organized with prefabricated movable timber barracks, and with women cooks in attendance."

WE CAN AGAIN BUILD BELTS TO *Your Specifications*

Super Construction with SYNALITE

1. *What is Synalite?* It is Pioneer's abrasion-heat-oil resistant synthetic rubber compound—the result of over 10 years of constant research.

2. *Are all Pioneer Belts made of Synalite?* No. you have your choice of Synalite or compounds of ordinary government synthetics. Synalite, however, is unsurpassed for all services.

3. *Price?* Synalite construction carries a premium compared to belts made from ordinary synthetic rubber. It is costlier to compound and produce. But performance more than offsets higher first cost.

Pioneer craftsmen can again build belting to your individual specifications... because limitations formerly applicable to natural rubber have been removed.

If your job demands a conveyor belt with a double thick cover for trouble-free operation, Pioneer can supply it—in the synthetic rubber best fitting your needs. You see, compounding and fabricating synthetic rubber is nothing new to Pioneer. "Know-now" goes back more than 10 years. The first Pioneer synthetic rubber was compounded in September 1932.

Development in our laboratory and shops has continued ever since. Today, there is a Pioneer synthetic compound that will do every job—better in many instances than natural rubber.

We'd like to know your problem.

PIONEER RUBBER MILLS
353 Sacramento St., San Francisco, 11, Cal.

PIONEER

Job Tailored CONVEYOR BELTS

British Mills Use Straw On Big Scale

Faced with extinction when the war cut off every major source of raw material and cutthroat competition threatened all who survived the first year, the paper industry in Britain is now prospering on a diet of straw, sandbags, shavings, rags and waste paper.

The success in the use of some of these makeshift materials has been so marked that experts have been amazed. Never before has paper been manufactured from straw on such a scale and certainly not in plants designed originally for other processes. Surprising, too, is the manner in which mills digest crude household refuse.

When the war began more than 200 mills in the British Isles using Scandinavian woodpulp and North African esparto grass closed while the rest carried on to meet the demands of the armed forces for shell cases, tubes to hold explosives, demolition containers, parts of aircraft such as laminated wing sections and many mechanical parts for gun controls.

Dr. Edwin C. Jahn, professor of forest chemistry at the New York State College of Forestry and a research collaborator in the United States Forest Service, who recently went to Sweden to study pulp and paper methods in that country, first investigated the British industry and was impressed by the government control which saved the mills from chaos early in the war.

"Almost everything that has recoverable fibers is used as raw material for paper," Dr. Jahn said in London recently. "Only a small amount of native

pulpwood, mainly Scotch pine, is cut. Some high priority fibers are imported from North America and Russia, but they represent the smallest fraction of requirements and are carefully reserved. Waste paper is the keystone."

In obtaining good, clean pulp from straw there is evidently a conflict between quantity and quality, but the British have succeeded in producing a good grade of writing paper and bond, and other types of utility paper exist in satisfactory volume.

Dr. Jahn believes there is post-war significance in this development with straw because British mills will resort to the more efficient methods they employed.

Paul E. Cooper, newly appointed vice-president and general manager of Pacific Mills, Ltd., at Vancouver, also pays a tribute to the ingenuity and perseverance of British paper mills in wartime. He says that an increasing number of women, elderly men and youths have found employment in the industry, but that there has been no decrease in the quality of papers used where permanent value is needed.

As chairman of a salvage waste organization in England Mr. Cooper was able to see for himself how fully all acceptable materials were utilized in the manufacture of pulp, paper and other commodities.

Box Plant Leads Longfibre Bowlers

The Longfibre Bowling League is now in full swing for employees of the Longview Fibre Company, Longview, Wash. The league personnel comes entirely from the company and its primary purpose is to provide recreation for the men.

From September 14 to November 6, the eight teams had engaged in 28 contests. Standings follow:

	Won	Lost	Pct.
Box Plant	19	9	.679
Mechanics	17	11	.607
Pipefitters	17	11	.607
Machine Room	14	14	.500
Pulp Mill	13	15	.464
Supervisors	13	15	.464
Bag Plant	10	18	.357
Finishing Room	9	19	.321

High team game, Bag Plant, 1058; high team series, Mechanics, 2927; high single game, McDaniels, 254, and high single series, Mechanics, 721.

Individual averages are running from 185 to 197, with the former being rolled in 27, and the latter in 17 only, of the 28 contests to date.

Hooker Company Announces Promotions

• The Hooker Electrochemical Company at Niagara Falls, N. Y., has announced the appointment of Dr. Lauren B. Hitchcock, as manager of sales development. He had been associated with the company since 1935 in the capacity of Consulting Chemical Engineer.

G. F. Reale was appointed special sales supervisor and will make his headquarters at the company's New York Office. He served as chief control chemist for British-American Chemical Company before he joined the Hooker Company in 1919.

William H. Monsson, well known on the Pacific Coast, was appointed midwestern sales supervisor. He has been a member of the sales organization since 1935. Prior to coming to the Hooker Company, he had been sulphite superintendent of the Munising Paper Company in Munising, Mich.

WANTED: Chemist, or chemical engineer for assistant chief chemist in southern papermill; must have experience in bleaching and sulphate process. Address Box 19, care of Pacific Pulp and Paper Industry, 71 Columbia St., Seattle 4, Wash.

Mill Man Kills 400-Lb. Bear

• Big game hunting has been especially good for the employees of the Puget Sound Pulp and Timber Company this year.

The biggest bag of the year so far was the 400-pound bear shot just on the edge of the city of Bellingham, Wash., by Ingvald Lunden, electricians' helper for the pulp company. Armed with only a buckshot loaded shotgun, Mr. Lunden came upon the bear on a trail at Lake Padden, the city water supply reservoir, and one shot through the heart was enough to lay low the big fellow.

Other men who had good fortune were: Elden Carr, digester repairman, a 175-pound buck, and Milton Reid, chiptender, a 160-pound buck. Mrs. Fred Gilmore, wife of the machineroom supervisor, went hunting with her brother, Hobart Race, machine tender, and each returned with a deer.

McKenzie On Tour

Herbert J. McKenzie, secretary of the British Columbia branch of the Canadian Pulp and Paper Association, spent several days in Montreal and other eastern cities early in November, conferring with pulp and paper executives and officials of the association.




VORTRAP

ARE DOING AN IMPORTANT JOB IN OVER 250 PULP AND PAPER MILLS.

Objectionable dirt is removed at low cost from pulp and paper making stocks.

Sand, grit and abrasive materials — the saboteurs of fourdrinier wires and felts are eliminated.


IN WARTIME when wires and felts are hard to get, this is of great value as records show these vital materials last from 10 to 35% longer in VORTRAP equipped mills.




NICHOLS

ENGINEERING & RESEARCH CORP.

60 Wall Tower University Tower
New York, N. Y. Montreal, P. Q.



Uncle Sam says:
"Help the War Effort by Saving Critical Resources"



Reddy Kilowatt says:
"Here are three ways to help!"

1. Continue to use all the electricity you need for proper lighting and eye conservation. But, turn off lights when you no longer need them.
2. Eliminate unnecessary waste in the use of your appliances. They will last longer and you will be conserving critical materials.
3. Conserve, whenever possible, in the use of promotional or display lighting, non-essential interior and show case lighting and decorative or ornamental lighting, etc.

Even though electricity is cheap and unrationed, don't waste it. . . . Use what you need—but **NEED** what you use.

PUGET SOUND POWER

& LIGHT COMPANY

O. C. SCHOENWERK

Consulting Engineer

3240 LAKE SHORE DRIVE
CHICAGO, ILLINOIS

Pulp and Paper Mill
Design — Construction

GEORGE F. HARDY

Consulting Engineer

305-309 Broadway, NEW YORK CITY, N. Y.

MEMBER—Am. Soc. C. E.—Am. Soc. M. E.—Eng. Inst. Can.
Consultation—Reports—Valuations—Estimates—Paper and Pulp Mills
—Hydro-Electric and Steam Power Plants—Plans and Specifications.

INSTRUMENTS Mechanical Electrical

Factory Representatives

"If Its An Instrument, We Can Repair It"

The Instrument Laboratory, Inc.

926-34 ELLIOTT AVE. W., SEATTLE

PULPWOOD CLEANING MACHINES

* * * BARKERS * * *

KNOT BORING and ROUTING MACHINES

CONCAVE KNIFE AND BROUING BIT GRINDERS

* * *

STETSON-ROSS MACHINE CO.

SEATTLE, WASHINGTON

PULP BLEACHING COMPANY

615 Alaska Street, SEATTLE, WASH.

EQUIPMENT FOR
CELLULOSE PURIFICATION
AND RELATED PROCESSES

MINING WORLD

With which is combined

PACIFIC CHEMICAL and
METALLURGICAL INDUSTRIES

Champion of the Mining, Chemical and Metallurgical
Industries of the West

\$3.00 per year in the United States; \$3.50 per year in
Canada; \$4.00 per year Foreign

71 Columbia St.
SEATTLE, WASH.
1220 S.W. Morrison St.
PORTLAND, ORE.

121 2nd Street
SAN FRANCISCO, CALIF.
124 W. Fourth St.
LOS ANGELES, CALIF.

PULP—

PERKINS-GOODWIN COMPANY

Established 1846

30 Rockefeller Plaza, NEW YORK

Suite 3605

—PAPER

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, NEW YORK CITY

Hardy S. Ferguson—Member A.S.C.E., A.S.M.E., E.I.C.

Moses H. Teaze—Member A.S.M.E., E.I.C., A.S.C.E.

Consultation, reports, valuations, and complete designs and engineering supervision for the construction and equipment of

Pulp and Paper Mills and other Industrial Plants.

Steam and Hydro-electric Power Plants

Dams and other Hydraulic Structures.

ALASKAN COPPER WORKS

SEATTLE

Distributors of

STAINLESS STEEL, EVERDUR, COPPER,
BRASS and BRONZE

In all commercial forms

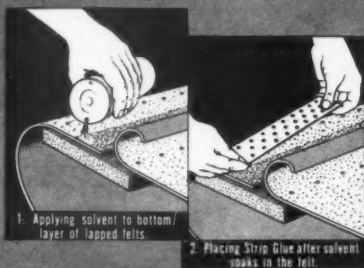
SHEETS, PIPE, TUBES, BARS, WIRE, NAILS, NUTS, BOLTS and FITTINGS
COMPLETE FABRICATION SERVICE

ROSS SYSTEMS

J. O. ROSS ENGINEERING CORPORATION

350 Madison Avenue, New York, N. Y.
201 North Wells Street, Chicago, Ill.

BUY WAR BONDS • BUY WAR BONDS • BUY WAR BONDS • BUY WAR BONDS

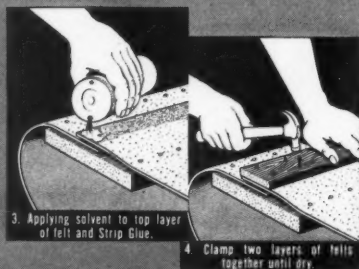


Strip Glue

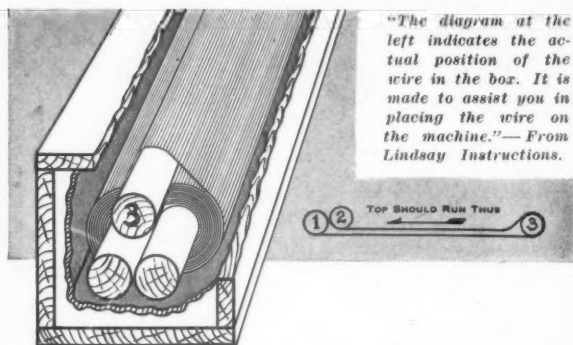
FOR DRYER FELT SEAMS

Application of Strip Glue is similar to Liquid Glue, except that solvent is used to soften the glue. Both ends of the felt are tacked to a board as long as the width of the felt. The Strip Glue is about two feet long for convenience, thus a section only slightly longer than this should be finished and clamped before repeating the operation. Glue should always be placed $\frac{1}{2}$ inch inside the ends of the felt. . . . Asten Felts can be joined with any type of seam you are accustomed to using. . . . We have recently published a 28 page book illustrating and describing various types of dryer felt seams.

ASTEN FELTS



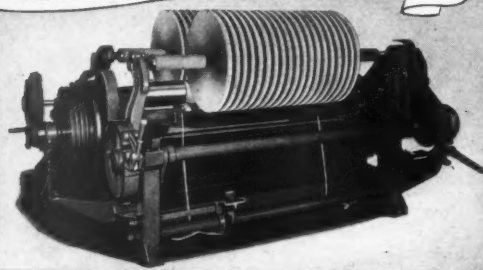
ASTEN-HILL MFG. CO. PHILADELPHIA • ASTEN-HILL LTD. VALLEYFIELD, QUE.



Yes, we want our "package" to impress you favorably. Every box is kept newly painted. That will look well, of course. More than that, a fresh coat of paint helps waterproof the lumber. Our steel winding cores are coated with high grade lacquer. That looks well, too, but, more than that, it keeps rust and grease from injuring the wire. Thus every Lindsay wire travels in a strong, dry box, amply protected from untoward experiences. . . . With every wire is enclosed a diagram like the one above to assist you in placing the wire on your machine. The diagram above is one of many which show how to unroll different types of wires. We believe that the precautions we take and those we suggest to you will aid you in securing better results from your purchases of Lindsay wire cloth.

THE LINDSAY WIRE WEAVING COMPANY
Serving the Paper Industry Since 1903
 14001-14299 ASPINWALL AVE. • CLEVELAND, OHIO

Another WAR JOB for CAMACHINE 28-3



AIR AND OIL FILTERS help to keep our planes flying and our motorized equipment rolling. In mechanized warfare, millions of paper filter discs are needed. These discs are stamped out of specially treated paper. Jumbo rolls of the treated paper are slit into strips of the width required and re-wound into rolls ready to feed to die-cutting machines. Converting these rolls is a CAMACHINE job. CAMACHINE 28-3 does it so fast and so well that one CAMACHINE is sufficient to keep 20 die-cutting presses supplied with paper.

Write for interesting folder.

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn, New York
 MIDWEST OFFICE: Harris Trust Building, 111 West Monroe Street, Chicago

INDEX OF ADVERTISERS

A	M
Alaskan Copper Works 57	McMaster, Leonard 55
American Forest Products Industries, Inc. 31 and 32	Merrick Scale Mfg. Co. 56
Appleton Wire Works 51	Monsanto Chemical Co. 56
Appleton Woolen Mills 56	
Asten-Hill Manufacturing Co. 58	N
B	Nash Engineering Co. 55
Bagley & Sewall Co. 56	Nichols Engineering & Research Corp. 50
Beloit Iron Works 1	Northwest Filter Co. 55
Black Clawson Co. Divisions: Shurtle Bros., Dilts Machine Works Inside Front Cover	Northwest Lead Co. 56
Bulkeley, Dunton Pulp Co. 2	
C	O
Cameron Machine Co. 58	Orr Felt & Blanket Co. 54
Chromium Corp. of America 56	
E	P
Eastwood-Nealey Corp. 48	Pacific Coast Supply Co. 53
Edison Storage Battery Co. 56	Pacific Gear Works Outside Back Cover
Electric Steel Foundry Co. 52	Pacific Gear & Tool Works Outside Back Cover
F	Perkins Goodwin Co. 57
Ferguson & Co., Hardy S. 57	Pioneer Rubber Mills 49
Freeport Sulphur Co. 55	Puget Sound Power & Light Co. 50
G	Puget Sound Pulp & Timber Co. 40
General Dyestuff Corporation Insert Great Western Division, The Dow Chemical Co. 37	Pulp Bleaching Co. 57
H	Pusey & Jones Corp. 56
Hardy, George F. 57	
Hesse-Ersted Iron Works 54	R
Hooker Electrochemical Co. 43	Rayonier Incorporated 38
I	Ross Engineering Corp. 57
Instrument Laboratory, Inc. 57	
J	S
Johnson Corporation, The 54	Schoenwerk, O. C. 57
L	Shuler & Benninghofen 52
Lindsay Wire Weaving Co. 58	Soundview Pulp Co. 44
Link-Belt Company Inside Back Cover	Stebbins Engineering Corp. 47
Lockport Felt Co. 51	Stetson-Ross Machine Co. 57
	Sumner Iron Works 53
	W
	Waterbury & Sons Co., H. 56
	Western Gear Works Outside Back Cover
	Weyerhaeuser Timber Co., Pulp Division 56
	Wisconsin Wire Works 56